EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	306	568/12.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/12/19 13:50
L2	35	l1 and dimer	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/12/19 13:50

STN Structure Search (Registry | Caplus)


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13  14
chain bonds :
1-13  4-6  5-14
ring bonds :
1-2  1-4  2-3  3-4  5-6  5-8  6-7  7-8
exact/norm bonds :
1-2  1-4  2-3  3-4  5-6  5-8  6-7  7-8
exact bonds :
1-13  4-6  5-14


Match level :
1:Atom  2:Atom  3:Atom  4:Atom  5:Atom  6:Atom  7:Atom  8:Atom  13:CLASS  14:CLASS


L1      STRUCTURE UPLOADED

=> d
L1 HAS NO ANSWERS
L1                STR
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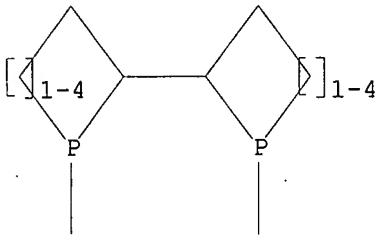

product search formula (5)

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Structure attributes must be viewed using STN Express query preparation.


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SAMPLE SCREEN SEARCH COMPLETED -       48 TO ITERATE

100.0% PROCESSED       48 ITERATIONS                          6 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS:  ONLINE  **COMPLETE**
                        BATCH   **COMPLETE**
PROJECTED ITERATIONS:          545 TO     1375
PROJECTED ANSWERS:               6 TO      266

L2            6 SEA SSS SAM L1

=> d scan
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=> s l1 full
FULL SEARCH INITIATED 11:56:21 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED -      918 TO ITERATE

100.0% PROCESSED      918 ITERATIONS                    89 ANSWERS
SEARCH TIME: 00.00.01

L3           89 SEA SSS FUL L1

=> fil caplus
COST IN U.S. DOLLARS                          SINCE FILE      TOTAL
                                                   ENTRY    SESSION
FULL ESTIMATED COST                               172.10     172.31

FILE 'CAPLUS' ENTERED AT 11:56:25 ON 19 DEC 2007
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FILE COVERS 1907 - 19 Dec 2007  VOL 147 ISS 26
FILE LAST UPDATED: 18 Dec 2007  (20071218/ED)

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http://www.cas.org/infopolicy.html

=> s l3
L4           34 L3

=> d ibib abs hitstr 1-34
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L4 ANSWER 1 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2007:1167447 CAPLUS
DOCUMENT NUMBER: 147:469248
TITLE: Preparation of 10-acyloxy-5H-dibenzo[b,f]azepine-5-carboxamides and their asymmetric hydrogenation to the chiral 10,11-dihydro derivatives
INVENTOR(S): Yu, Bing; Li, Wenge; Learmonth, David Alexander
PATENT ASSIGNEE(S): Portela & C.A., S.A, Port.
SOURCE: Brit. UK Pat. Appl., 29pp.
CODEN: BAXXDU
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 2437078	A	20071017	GB 2006-7317	20060411
WO 2007117166	A1	20071018	WO 2007-PT17	20070411

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

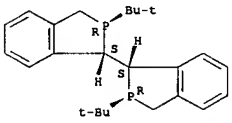
PRIORITY APPLN. INFO.: GB 2006-7317 A 20060411

OTHER SOURCE(S): CASREACT 147:469248; MARPAT 147:469248
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

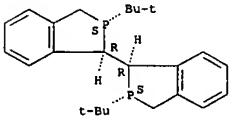
AB A process for preparing a compound of the formula [I or II; R = alkyl, aminoalkyl, haloalkyl, aralkyl, cycloalkyl, cycloalkylalkyl, alkoxy, (un)substituted Ph, pyridyl; the term alkyl means carbon chain, straight or branched, containing from 1 to 18 carbon atoms; the term halogen represents fluorine, chlorine, bromine or iodine; the term cycloalkyl represents a saturated alicyclic group with 3 to 6 carbon atoms; the term aryl represents unsubstituted Ph group or Ph substituted by alkoxy, halogen or nitro group] comprises asym. hydrogenation of a compound of the formula (III; wherein R has the same meanings as above) using a chiral catalyst and a source of hydrogen. Thus, oxcarbazepine was acetylated by acetic anhydride in the presence of 4-dimethylaminopyridine and pyridine in CH2Cl2 at room temperature for 145 min to give 88% 10-acetoxy-5H-dibenz[b,f]azepine-5-carboxamide which was hydrogenated in the presence of Rh(COD)(RcSp-DuanPhos)BF4 (IV) (prepn. given) at H pressure of 750 psi in EtOAc to give (S)-10-acetoxy-10,11-dihydro-5H-dibenz[b,f]azepine-5-carboxamide (94% e.e.).

L4 ANSWER 1 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



IT 528814-26-8, RcSp-DuanPhos
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactant; preparation of 10-acyloxy-5H-dibenzo[b,f]azepine-5-carboxamides and their asym. hydrogenation to the chiral 10,11-dihydro derivs. in the presence of rhodium-chiral phosphine complex)
RN 528814-26-8 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis(1,1-dimethylethyl)-2,2',3,3'-tetrahydro-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

Absolute stereochemistry.

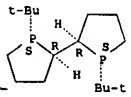


REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 1 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

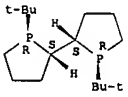
IT 470480-32-1 752258-19-8 795290-34-5, ScRp-DuanPhos
RL: CAT (Catalyst use); USES (Uses)
(preparation of 10-acyloxy-5H-dibenzo[b,f]azepine-5-carboxamides and their asym. hydrogenation to the chiral 10,11-dihydro derivs. in the presence of rhodium-chiral phosphine complex)
RN 470480-32-1 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.



RN 752258-19-8 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

Absolute stereochemistry.



RN 795290-34-5 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis(1,1-dimethylethyl)-2,2',3,3'-tetrahydro-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.

L4 ANSWER 2 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2007:1121489 CAPLUS
DOCUMENT NUMBER: 147:427233
TITLE: Process for the preparation of enantiomerically enriched beta-aryl or heteroaryl carbocyclic or heterocyclic carboxylic acids
INVENTOR(S): Bachmann, Stephan; Scalone, Michelangelo; Schnider, Patrick
PATENT ASSIGNEE(S): Switz.
SOURCE: U.S. Pat. Appl. Publ., 40pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

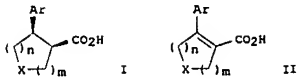
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2007232653	A1	20071004	US 2007-731191	20070330
WO 2007113155	A1	20071011	WO 2007-EP52855	20070326

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.: EP 2006-112171 A 20060403

OTHER SOURCE(S): CASREACT 147:427233; MARPAT 147:427233
GI

L4 ANSWER 2 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



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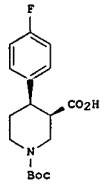


III

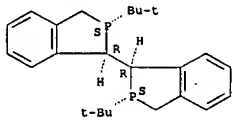
AB The present invention relates to a process for the preparation of cis substituted cyclic β-aryl or heteroaryl carboxylic acid derivs. I [X = O, CO, NH, etc.; Ar = aryl or heteroaryl; m and n independently = 0-3], or a pharmaceutically acceptable salt thereof, in high diastereo- and enantioselectivity by enantioselective hydrogenation wherein the corresponding α,β-unsatd. acid II undergoes hydrogenation in the presence of chiral ruthenium catalysts. Thus, e.g., 4-(4-fluorophenyl)-5,6-dihydro-2H-pyridine-1,3-dicarboxylic acid 1-tert-Bu ester was enantioselectively hydrogenated utilizing [Ru(OAc)2((S)-3,5-Xyl-4-MeO)-MeoBIPHEP] to provide III with 96.6% e.e. Methods for providing the starting materials was also provided. Further disclosed were chiral phosphines for use as ligands in the chiral ruthenium catalysts.

IT 528814-26-8
RL: CAT (Catalyst use); USES (Uses)
(stereoselective preparation of β-aryl or heteroaryl carbocyclic or heterocyclic carboxylic acids via hydrogenation of corresponding unsatd. carbocyclic or heterocyclic carboxylic acids in presence of chiral ruthenium catalysts)

RN 528814-26-8 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis(1,1-dimethylethyl)-2,2',3,3'-tetrahydro-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

Absolute stereochemistry.

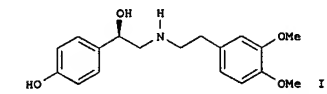
L4 ANSWER 2 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



L4 ANSWER 3 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2007:1117486 CAPLUS
TITLE: Asymmetric hydrogenation of α-primary and secondary amino ketones: efficient asymmetric syntheses of (-)-arbutamine and (-)-denopamine
AUTHOR(S): Shang, Gao; Liu, Duan; Allen, Scott E.; Yang, Qin; Zhang, Xumu
CORPORATE SOURCE: Department of Chemistry, The Pennsylvania State University, University Park, PA, 16802, USA
SOURCE: Chemistry--A European Journal (2007), 13(27), 7780-7784
CODEN: CEUJED; ISSN: 0947-6539
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English

GI



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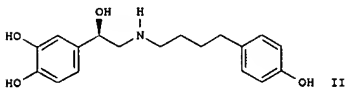


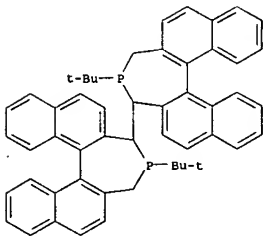
II

AB Two β-receptor agonists (-)-denopamine (I) and (-)-arbutamine (II) were prepared in good yields and enantioselectivities by asym. hydrogenation of unprotected amino ketones for the first time by using Rh catalysts bearing electron-donating phosphine ligands. A series of α-primary and secondary amino ketones, e.g. ArCOCH2NHR (Ar = Ph, 2-MeOC6H4, 2-naphthyl, R = Me; Ar = Ph, R = Et), were synthesized and hydrogenated to produce various 1,2-amino alcs., e.g. ArCH(OH)CH2NHR, in good yields and with good enantioselectivities. This Rh electron-donating phosphine-catalyzed asym. hydrogenation rep- resents one of the most promising and convenient approaches towards the asym. synthesis of chiral amino alcs.

IT 528854-26-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(rhodium-catalyzed asym. hydrogenation of α-primary and secondary amino ketones and asym. synthesis of (-)-arbutamine and (-)-denopamine)

RN 528854-26-4 CAPLUS
CN 3,3'-Bi-3H-dinaphtho[2,1-c:1',2'-e]phosphepin, 4,4'-bis(1,1-dimethylethyl)-4,4',5,5'-tetrahydro-, (3R,3'R,4S,4'S,11bS,11'bS)- (9CI) (CA INDEX NAME)

L4 ANSWER 3 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

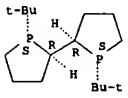
L4 ANSWER 4 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2007:899657 CAPLUS
DOCUMENT NUMBER: 147:427415
TITLE: Asymmetric Synthesis of 2-Alkyl-3-phosphonopropanoic Acids via P-C Bond Formation and Hydrogenation
AUTHOR(S): Badkar, Pallavi A.; Rath, Nigam P.; Spilling, Christopher D.
CORPORATE SOURCE: Department of Chemistry and Biochemistry, University of Missouri St. Louis, St. Louis, MO, 63121, USA
SOURCE: Organic Letters (2007), 9(18), 3619-3622
CODEN: ORLEF7; ISSN: 1523-7060
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 147:427415

AB Allylic acetates, formed by the acetylation of Baylis Hillman adducts, undergo addition of phosphorus nucleophiles to give stereoselectively the Z-unsatd. esters. TFA cleavage of the tert-Bu ester and asym. hydrogenation of the unsatd. acid yields the phosphono alkyl propanoic acid moiety, commonly found in phosphonate- and phosphinate-based enzyme inhibitors.

IT 470480-32-1
RL: CAT (Catalyst use); USES (Uses)
(preparation of phosphonopropanoic acids via P-C bond formation and hydrogenation)

RN 470480-32-1 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 65 THERE ARE 65 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE
FORMAT

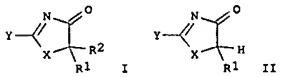
L4 ANSWER 5 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2007:561667 CAPLUS
DOCUMENT NUMBER: 147:9895
TITLE: Catalyzed process of making C-5-substituted heterocyclic inhibitors of 11-β-hydroxy steroid dehydrogenase type 1
INVENTOR(S): Bunel, Emilio; Guram, Anil; Liu, Qingyian
PATENT ASSIGNEE(S): Amgen, Inc., USA
SOURCE: U.S. Pat. Appl. Publ., 16pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2007117985	A1	20070524	US 2006-590922	20061101
WO 2007061600	A1	20070531	WO 2006-US42913	20061101

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.: US 2005-738574P P 20051122

OTHER SOURCE(S): CASREACT 147:9895; MARPAT 147:9895
GI



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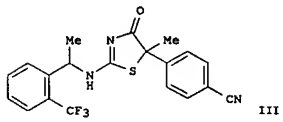


III

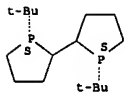
L4 ANSWER 5 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

AB The invention provides a process for preparing 11-β-hydroxy steroid dehydrogenase type 1 inhibitors of formula I via a catalyzed reaction between a compound of formula II and a compound of formula R2LG in the presence of base. A process for preparing compds. of formula I from formula II and R2LG wherein X is S, O, NH and derivs.; Y is NH2 and derivs., OH and derivs., (un)substituted CH2, and SH and derivs.; LG is a leaving group; R1 is H, (un)substituted C1-8 alkyl, (un)substituted C2-8 alkenyl, (un)substituted C2-8 alkynyl, (un)substituted C1-4 alkoxy,-C1-4 alkyl, etc., R2 is (un)substituted C2-8 alkenyl, (un)substituted C2-8 alkynyl, and (un)substituted (hetero)aryl; and their tautomers, stereoisomers, solvates, and pharmaceutically acceptable salts thereof, are claimed. Exemplary catalysts contain palladium and one or more phosphine ligands. The process can be performed in a stereoselective manner to give enantiomerically enriched products. Example compound III was prepared by palladium-catalyzed coupling of 5-methyl-2-((S)-1-(2-trifluoromethylphenyl)ethylamino)thiazol-4-(5H)-one with 4-bromobenzonitrile.

IT 937187-47-8
RL: CAT (Catalyst use); USES (Uses)
(preparation of substituted thiazolone derivs. as inhibitors of 11-β-hydroxysteroid dehydrogenase type 1 using catalyzed coupling of aryl bromides thiazolones)

RN 937187-47-8 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S)- (CA INDEX NAME)

Absolute stereochemistry.



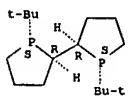
L4 ANSWER 6 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:1042516 CAPLUS
DOCUMENT NUMBER: 146:45343
TITLE: Asymmetric Epoxidation of Terminal Alkenes with Hydrogen Peroxide Catalyzed by Pentafluorophenyl PtII Complexes
AUTHOR(S): Colladon, Marco; Scarso, Alessandro; Sgarbossa, Paolo; Michelin, Rino A.; Strukul, Giorgio
CORPORATE SOURCE: Dipartimento di Chimica, Universita Ca' Foscari di Venezia, Venice, 30123, Italy
SOURCE: Journal of the American Chemical Society (2006), 128(43), 14006-14007
CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 146:45343

AB Easily accessible chiral PtII pentafluorophenyl diphosphine complexes allow highly enantioselective and completely regioselective asym. epoxidn. of terminal alkenes with hydrogen peroxide.

IT 470480-32-1, (S,S,R,R)-TangPhos
RL: RCT (Reactant); RACT (Reactant or reagent)
(regio- and enantioselective epoxidn. of terminal alkenes with hydrogen peroxide catalyzed by pentafluorophenyl PtII complexes)

RN 470480-32-1 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
FORMAT

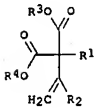
L4 ANSWER 7 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:1011494 CAPLUS
DOCUMENT NUMBER: 145:357101
TITLE: Preparation of β-amino acid precursors via indium(III) mediated Markovnikov addition and Knoevenagel condensation
INVENTOR(S): Angell, Paul Timothy; Blazecka, Peter Garth; Zhang, Ji
PATENT ASSIGNEE(S): Warner-Lambert Company LLC, USA
SOURCE: PCT Int. Appl., 77pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

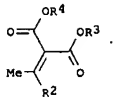
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006100606	A2	20060928	WO 2006-IB1126	20060313
WO 2006100606	A3	20070315		
WO 2006100606	B1	20070412		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA

PRIORITY APPLN. INFO.: US 2005-665042P P 20050324

OTHER SOURCE(S): MARPAT 145:357101
GI

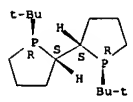

I


II

AB Disclosed are materials and methods for preparing precursors of optically active β-amino acids I and II, wherein R1 and R2 are each independently selected from hydrogen atom, alkyl, cycloalkyl, cycloalkyl, aryl, arylamino, wherein each alkyl or cycloalkyl moiety is optionally substituted with from one to five fluorine atoms, and each aryl is optionally substituted with from one to three substituents independently

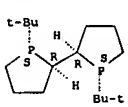
L4 ANSWER 7 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
selected from chloro, fluoro, amino, nitro, cyano, alkylamino, alkyl optionally substituted with from one to three fluorine atoms, and alkoxy optionally substituted with from one to three fluorine atoms, provided that R1 and R2 are not both hydrogen atoms and that when R1 is a hydrogen atom, R2 is not methyl; and R3 and R4 are each independently selected from
hydrogen atom, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, halo-alkyl, halo-alkenyl, halo-alkynyl, aryl-alkyl, aryl-alkenyl, aryl-alkynyl, provided that R3 and R4 are not both hydrogen atoms; which bind to the α2δ subunit of a calcium channel and are useful for treating pain, fibromyalgia, and a variety of psychiatric and sleep disorders. The method includes reacting a malonate deriv. with a terminal
alkyne in the presence of an In(III) catalyst. Thus,. Thus, condensation
of di-Et methylmalonate with phenylacetylene and InCl3 in o-xylene gave 2-methyl-2-(1-phenylvinyl)malonic acid di-Et ester in 94 yield.
IT 752258-19-8D, catalyst containing rhodium and
RL: CAT (Catalyst use); USES (Uses)
(preparation of β-amino acid precursors via indium(III) mediated Markovnikov addition and Knoevenagel condensation)
RN 752258-19-8 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

Absolute stereochemistry.



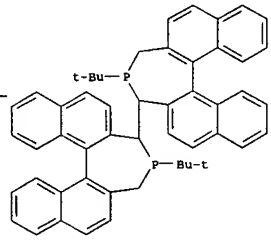
L4 ANSWER 8 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:895971 CAPLUS
DOCUMENT NUMBER: 145:455102
TITLE: Evaluation of Asymmetric Hydrogenation Ligands in Asymmetric Hydroformylation Reactions. Highly Enantioselective Ligands Based on Bis-phosphacycles
AUTHOR(S): Axtell, Alex T.; Klosin, Jerzy; Abboud, Khalil A.
CORPORATE SOURCE: Corporate R & D, The Dow Chemical Company, Midland, MI, 48674, USA
SOURCE: Organometallics (2006), 25(21), 5003-5009
CODEN: ORGND7; ISSN: 0276-7333
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 145:455102
AB An evaluation of 47 P-based ligands was conducted in Rh-catalyzed asym. hydroformylation reactions, AHF, at high temperature Most of the ligands exhibited poor enantio- and regioselectivity as well as low catalytic activity. Two ligands, (R)-Binapine and (S,S,R,R)-TangPhos, gave outstanding enantioselectivities in asym. hydroformylation of styrene, allyl cyanide, and vinyl acetate. (R)-Binapine gave 94% ee, 94% ee, and 87% ee, whereas (S,S,R,R)-TangPhos gave 90% ee, 93% ee, and 83% ee for hydroformylation products of styrene, allyl cyanide, and vinyl acetate, resp. Enantioselectivity achieved for the allyl cyanide product with these ligands is the highest ever reported for this substrate. Excess of (S,S,R,R)-TangPhos leads to low enantioselectivities in the AHF of styrene
and allyl cyanide due to in situ formation of the ionic complex [[((S,S,R,R)-TangPhos)2]Rh]+[acac]-. The noncoordinating acetylacetonate anion is responsible for this sharp decrease of enantioselectivity in hydroformylation products. X-ray crystal structures of [[((S,S,R,R)-TangPhos)2]Rh]+[acac]- and [(S,S,R,R)-TangPhos]Rh(acac) were determined and examined The high success achieved with bis-phosphacycle ligands
in asym. hydroformylation reactions suggests that this ligand class is unique and highly promising among previously studied P-based systems and should be further explored in search of even better ligands for this important reaction.
IT 470480-32-1 528854-26-4
RL: CAT (Catalyst use); USES (Uses)
(Rh-catalyzed asym. hydroformylation reactions of alkenes in the presence of chiral bisphosphacycle ligands)
RN 470480-32-1 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.



RN 528854-26-4 CAPLUS
CN 3,3'-Bi-3H-dinaphtho[2,1-c:1',2'-e]phosphepin, 4,4'-bis(1,1-dimethylethyl)-

L4 ANSWER 8 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
4,4',5,5'-tetrahydro-, (3R,3'R,4S,4'S,11bS,11'bS)- (9CI) (CA INDEX NAME)



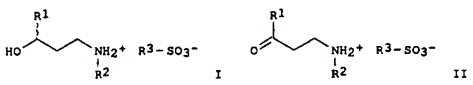
REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 9 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:866581 CAPLUS
DOCUMENT NUMBER: 145:271387
TITLE: Process for the preparation of enantiomerically pure 1-substituted-3-amino alcohols using methyl ketones, primary amines, formaldehydes and sulfonic acids
INVENTOR(S): Brieden, Walter; Clausen, Martin; McGarrity, John; Mettler, Hanspeter; Michel, Dominique
PATENT ASSIGNEE(S): Lonza A.-G., Switz.
SOURCE: PCT Int. Appl., 38pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006087166	A1	20060824	WO 2006-EP1334	20060214
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
EP 1693371	A1	20060823	EP 2005-3657	20050221
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, BA, HR, IS, YU				
AU 2006215811	A1	20060824	AU 2006-215811	20060214
CA 2596909	A1	20060824	CA 2006-2596909	20060214
KR 2007104942	A	20071029	KR 2007-721483	20070919
IN 2007CN04126	A	20071116	IN 2007-CN4126	20070920

PRIORITY APPLN. INFO.:			
		EP 2005-3657	A 20050221
		WO 2006-EP1334	W 20060214

OTHER SOURCE(S): CASREACT 145:271387; MARPAT 145:271387
GI

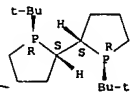


AB Provided is a process for the preparation of N-monosubstituted β-aminoalc.

L4 ANSWER 9 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
RECORD. ALL CITATIONS AVAILABLE IN THE RE
FORMAT

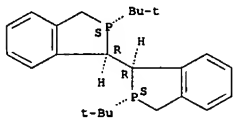
L4 ANSWER 9 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
sulfonates of formula I. Compds. of formula I wherein R1 is (un)substituted C6-20 aryl or (un)substituted C4-12 heteroaryl; R2 is C1-4-alkyl or (un)substituted C6-20 aryl; R3 is selected from the group consisting of C1-18 alkyl, C6-20 cycloalkyl, C6-20 aryl and C7-20 aralkyl residues, and the process for prepg. compds. of formula I are claimed. The process comprising the steps of a) reacting a Me ketone, a primary amine, formaldehyde and a sulfonic acid, at a pressure above 1.5 bar, optionally in a org. solvent, said org. solvent optionally contg. water, to afford N-monosubstituted β-amino ketone sulfonates of formula II, wherein R1, R2 and R3 are as defined above, and b) asym. hydrogenating said sulfonates in the presence of a base and a catalyst, comprising a transition metal and a diphosphine ligand, in a polar solvent, optionally in the presence of water.
IT 752258-19-8, (R,R,S,S)-TangPhos
RL: CAT (Catalyst use); USES (Uses)
((R,R,S,S)-TangPhos, catalyst; preparation of enantiomerically pure sulfonate salts of substituted amino alcs. and amino ketones by reacting Me ketones, primary amine, formaldehyde and sulfonic acids)
RN 752258-19-8 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

Absolute stereochemistry.



IT 528814-26-8
RL: CAT (Catalyst use); USES (Uses)
(catalyst; preparation of enantiomerically pure sulfonate salts of substituted amino alcs. and amino ketones by reacting Me ketones, primary amine, formaldehyde and sulfonic acids)
RN 528814-26-8 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis(1,1-dimethylethyl)-2,2',3,3'-tetrahydro-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS

L4 ANSWER 10 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:787894 CAPLUS
DOCUMENT NUMBER: 145:230875
TITLE: Preparation of optically active β-hydroxy amino acids with ruthenium-optically active phosphine complexes
INVENTOR(S): Washio, Noriyuki; Hirao, Sumitaka; Katsuura, Akio
PATENT ASSIGNEE(S): Nippon Synthetic Chemical Industry Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 12pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006206570	A	20060810	JP 2005-160900	20050601

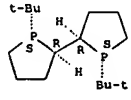
PRIORITY APPLN. INFO.:		
	JP 2004-376578	A 20041227

OTHER SOURCE(S): MARPAT 145:230875
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

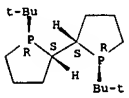
AB Optically active HOCHR1CH(NHCOR3)CO2R2 [R1 = (un)substituted C1-8 alkyl, (un)substituted C2-8 alkenyl, alkynyl, (poly)cyclic (hetero)cyclyl; R2 = H, C1-4 alkyl, (un)substituted Ph, (un)substituted PhCH2; R3 = H, C1-4 alkyl, C1-4 alkoxy, (un)substituted (alkoxy)phenyl] are prepared by asym. reduction of R1COCH(NHCOR3)CO2R2 (R1-R3 = same as above) in the presence of [RuX2(L)](dmf)n, [Ru2Cl4(L)2]Et3N, or [RuX(arene)(L)]Y (X = Cl, Br, iodine; n = 0-3; L = optically active Cm-TunaPhos I, II, III; m = 1-6; R = H, Me, CMe3, MeO; dmf = DMF; arene = C6H6, p-cymene; Y = Cl, Br, iodine, BF4, BPh4). Thus, Et 2-benzoylamino-3-cyclohexyl-3-oxopropionate was autoclaved with [RuCl2[(S)-C3-TunaPhos]](dmf)n in CH2Cl2 to give 100% Et (2R,3S)-2-benzoylamino-3-cyclohexyl-3-hydroxypropionate with 97% de.
IT 470480-32-1D, complexes with Ru compds.
RL: CAT (Catalyst use); USES (Uses)
(preparation of optically active hydroxy amino acids with Ru-phosphine complexes as stereoselective reduction catalysts)
RN 470480-32-1 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.



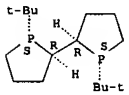
L4 ANSWER 10 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
IT 752258-19-8DP, complexes with DMF and Ru compound
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(preparation of optically active hydroxy amino acids with Ru-phosphine complexes as stereoselective reduction catalysts)
RN 752258-19-8 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

Absolute stereochemistry.



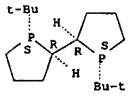
IT 470480-32-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of optically active hydroxy amino acids with Ru-phosphine complexes as stereoselective reduction catalysts)
RN 470480-32-1 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.



L4 ANSWER 11 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:594630 CAPLUS
DOCUMENT NUMBER: 145:230364
TITLE: A highly enantioselective, Pd-TangPhos catalyzed hydrogenation of N-tosylimines
AUTHOR(S): Yang, Qin; Shang, Gao; Gao, Wenzhong; Deng, Jingen; Zhang, Xumu
CORPORATE SOURCE: Department of Chemistry, The Pennsylvania State University, University Park, PA, 16802, USA
SOURCE: Angewandte Chemie, International Edition (2006), 45(23), 3832-3835
CODEN: ACIEF5; ISSN: 1433-7851
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 145:230364
AB A catalyst system composed of Pd(OCOCF3)2 complexed with the electron-donating rigid chiral diphosphane TangPhos gives excellent enantioselectivities (up to 99% ee) and conversions (up to > 99%) in the hydrogenation of N-tosyl imines 4-MeC6H4SO2N:CR1R2 [R1 = Ph, 4-MeC6H4, 3-MeOC6H4, 2-naphthyl, cyclopropyl, etc., R2 = Me; R1 = Ph, R2 = Et; R1R2 = o-C6H4(CH2)n, n = 2, 3]. A variety of aromatic, aliphatic, and cyclic chiral N-sulfonyl amines 4-MeC6H4SO2NHCHR1R2 has been prepared by this methodol.
IT 470480-32-1
RL: CAT (Catalyst use); USES (Uses)
(asym. synthesis of secondary N-sulfonyl amines by enantioselective Pd-TangPhos-catalyzed hydrogenation of N-tosyl imines)
RN 470480-32-1 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 58 THERE ARE 58 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

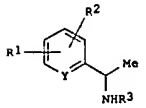
L4 ANSWER 12 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:463311 CAPLUS
DOCUMENT NUMBER: 144:488406
TITLE: Asymmetric catalytic hydrogenation of aromatic enamides into chiral aromatic acylamines
INVENTOR(S): Mcwilliams, James C.; Allwein, Shawn P.; Nelson, Todd D.; O'Shea, Paul; Shultz, Clinton S.
PATENT ASSIGNEE(S): Merck & Co., Inc., USA; Merck Frosst Canada Ltd.
SOURCE: PCT Int. Appl., 17 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

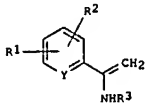
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006052514	A1	20060518	WO 2005-US39332	20051101

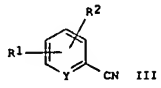
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.: US 2004-625013P P 20041104

OTHER SOURCE(S): CASREACT 144:488406; MARPAT 144:488406
GI


I

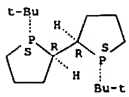

II


III

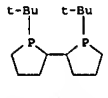
AB Chiral acylamines (I; Y = N, CH; R1, R2 = H, halogen, alk(oxy), OH, OSO2CH3, OSO2CF3, NO2, (un)substituted Ph; R3 = CHO, (un)substituted C(O)C1-4alkyl, C(O)aryl, C(O)CH2aryl, C(O)Oalkyl, C(O)Oaryl, C(O)OCH2aryl;

L4 ANSWER 12 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
e.g., N-[(1R)-1-(4-bromo-2-fluorophenyl)ethyl]acetamide] are prepd. in high yield and selectivity by hydrogenating in the presence of hydrogen gas a prochiral enamide (II) in a suitable org. solvent in the presence of a rhodium metal precursor complexed to a chiral mono- or bi-dentate phosphine ligand. II are readily prepd. by the reaction of an arylnitrile (III) with a methylating agent selected from methylmagnesium bromide, methylmagnesium chloride, methyllithium, and methyllithium-lithium bromide complex, in a suitable org. solvent in the presence of chlorides R3Cl or ethers R3O.
IT 470480-32-1, (S,S,R,R)-Tangphos 887143-42-2 887326-20-7
RL: CAT (Catalyst use); USES (Uses)
(asym. catalytic hydrogenation of aromatic enamides into chiral aromatic acylamines)
RN 470480-32-1 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.

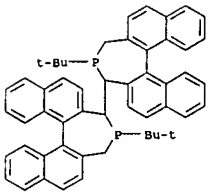


RN 887143-42-2 CAPLUS
CN 2,2'-Biphospholane, 1,1-bis(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)



RN 887326-20-7 CAPLUS
CN 3,3'-Bi-3H-dinaphtho[2,1-c:1',2'-e]phosphepin, 4,4'-bis(1,1-dimethylethyl)-4,4',5,5'-tetrahydro- (9CI) (CA INDEX NAME)

L4 ANSWER 12 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

L4 ANSWER 13 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN

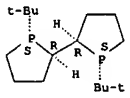
ACCESSION NUMBER: 2006:180209 CAPLUS
DOCUMENT NUMBER: 144:350108
TITLE: Highly enantioselective Ru-catalyzed hydrogenation of β-keto esters using electron-donating bis(trialkylphosphine) ligand TangPhos
AUTHOR(S): Wang, Chun-Jiang; Tao, Haiyan; Zhang, Xumu
CORPORATE SOURCE: Department of Chemistry, The Pennsylvania State University, University Park, PA, 16802, USA
SOURCE: Tetrahedron Letters (2006), 47(12), 1901-1903
CODEN: TELEAY; ISSN: 0040-4039
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Highly electron-donating bis(trialkylphosphine) TangPhos and its corresponding ruthenium complexes provided high enantioselectivities for the hydrogenation of β-keto esters. Up to 99.8 and 99.5% ee were achieved in hydrogenation of β-alkyl and β-aryl β-keto esters, resp. Asym. hydrogenation of Et 4-chloroacetoacetate in 98.2% ee is also reported.

IT 470480-32-1D, ruthenium complexes
RL: CAT (Catalyst use); USES (Uses)
(enantioselective hydrogenation of β-keto esters with ruthenium TangPhos catalyst)

RN 470480-32-1 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

L4 ANSWER 14 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:1346101 CAPLUS
DOCUMENT NUMBER: 144:94331
TITLE: Novel stable compositions of water and oxygen sensitive compounds and their method of preparation
INVENTOR(S): Taber, Douglass F.; Li, Hui-Yin
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 12 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005288257	A1	20051229	US 2005-166937	20050623
PRIORITY APPLN. INFO.:			US 2004-583054P P	20040625

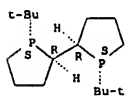
OTHER SOURCE(S): MARPAT 144:94331

AB The present application described a new formulation for oxygen and/or water sensitive compds. with an inert material such as paraffin. The new formulation provides stability for the oxygen and/or water sensitive compds. in the air and can be handled easily. The new formulation of the present invention is useful as ligands and/or catalysts for preparation of pharmaceuticals, agrochem., other fine chems. and other synthetic compds.

IT 470480-32-1 752258-19-8 872552-88-0
RL: TEM (Technical or engineered material use); USES (Uses)
(novel stable compns. of water and oxygen sensitive compds. and their method of preparation)

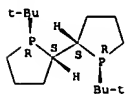
RN 470480-32-1 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.



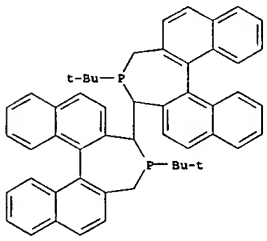
RN 752258-19-8 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

Absolute stereochemistry.



L4 ANSWER 14 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

RN 872552-88-0 CAPLUS
CN 3,3'-Bi-3H-dinaphtho[2,1-c:1',2'-e]phosphepin, 4,4'-bis(1,1-dimethylethyl)-4,4',5,5'-tetrahydro-, (3S,3'S,4S,4'S,11bS,11'bS)- (9CI) (CA INDEX NAME)



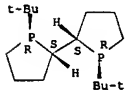
L4 ANSWER 15 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:1084713 CAPLUS
DOCUMENT NUMBER: 144:36155
TITLE: A highly enantioselective catalyst for asymmetric hydroformylation of [2.2.1]-bicyclic olefins
AUTHOR(S): Huang, Jinkun; Bunel, Emilio; Allgeier, Alan; Tedrow, Jason; Storz, Thomas; Preston, J.; Correll, Tiffany; Manley, Deana; Soukup, Troy; Jensen, Randy; Syed, Rashid; Moniz, George; Larsen, Robert; Martinelli, Michael; Reider, Paul J.
CORPORATE SOURCE: Chemical Process Research & Development, Amgen Inc., Thousand Oaks, CA, 91320, USA
SOURCE: Tetrahedron Letters (2005), 46(45), 7831-7834
CODEN: TELEAY; ISSN: 0040-4039
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 144:36155

AB Rh(CO)2(acac)/TangPhos was found to be a highly enantioselective catalyst for asym. hydroformylation of norbornylene under mild conditions. Application of the protocol to the desymmetrization of other [2.2.1]-bicyclic olefins gave moderate to excellent enantioselectivity (55-92% ee).

IT 752258-19-8
RL: CAT (Catalyst use); USES (Uses)
(rhodium-catalyzed asym. hydroformylation of [2.2.1]-bicyclic olefins using TangPhos ligand)

RN 752258-19-8 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE
FORMAT

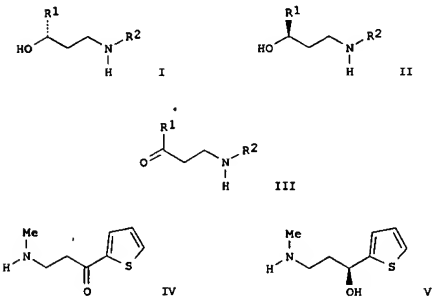
L4 ANSWER 16 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:962239 CAPLUS
DOCUMENT NUMBER: 143:266590
TITLE: Process for the preparation of enantiomerically pure 1-substituted-3-aminoalcohols
INVENTOR(S): Michel, Dominique; Mettler, Hanspeter; McGarrity, John
PATENT ASSIGNEE(S): Lonza A.-G., Switz.
SOURCE: PCT Int. Appl., 20 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005080370	A1	20050901	WO 2005-EP1781	20050221
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1566383	A1	20050824	EP 2004-3809	20040219
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
AU 2005215906	A1	20050901	AU 2005-215906	20050221
CA 2556891	A1	20050901	CA 2005-2556891	20050221
EP 1720852	A1	20061115	EP 2005-715425	20050221
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR				
CN 1922168	A	20070228	CN 2005-80005452	20050221
BR 2005006796	A	20070522	BR 2005-6796	20050221
JP 2007523124	T	20070816	JP 2006-553562	20050221
IN 2006DN04971	A	20070817	IN 2006-DN4971	20060829
NO 2006004017	A	20060915	NO 2006-4017	20060906
KR 2007009587	A	20070118	KR 2006-718840	20060914

PRIORITY APPLN. INFO.: EP 2004-3809 A 20040219
EP 2004-10043 A 20040428
WO 2005-EP1781 W 20050221

OTHER SOURCE(S): MARPAT 143:266590
GI

L4 ANSWER 16 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



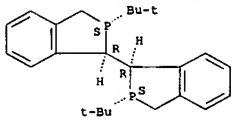
AB A process for the preparation of enantiomerically pure 1-substituted-3-aminoalcs. of formula I [wherein R1 = (un)substituted 2-thienyl, (un)substituted 2-furanyl, or (un)substituted phenyl; R2 = (un)substituted C1-4 alkyl or (un)substituted phenyl] and formula II [wherein R1 = (un)substituted 2-thienyl, (un)substituted 2-furanyl, or (un)substituted phenyl; R2 = (un)substituted C1-4 alkyl or (un)substituted phenyl], by asym. hydrogenating an aminoketone or salts of a carboxylic acid and an aminoketone of formula III [wherein R1 = (un)substituted 2-thienyl, (un)substituted 2-furanyl, or (un)substituted phenyl; R2 = (un)substituted C1-4 alkyl or (un)substituted phenyl], and wherein the corresponding aminoalcs. are obtained by subsequent hydrolysis of their salts. Thus, a mixture of 2-acetylthiophene, methylamine hydrochloride, and paraformaldehyde were heated to 120-130 °C for nine hours in ethanol and precipitated to provide 3-N-methylamino-1-(2-thienyl)-1-propanone hydrochloride (PRON-HCl, IV·HCl) which was subsequently stereoselectively reduced in the presence of a transition metal complex of a diphosphine ligand to provide (S)-(-)-3-N-methylamino-1-(2-thienyl)-1-propanol ((S)-PROL-HCl, V). Furthermore provided are salts of carboxylic acids with said aminoketones and the aminoalcs. obtained by asym. hydrogenating said aminoketones, resp.

IT 528814-26-8 752258-19-8
RL: CAT (Catalyst use); USES (Uses)
(process for the preparation of enantiomerically pure 1-substituted-3-aminoalcs.)

RN 528814-26-8 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis(1,1-dimethylethyl)-2,2',3,3'-tetrahydro-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

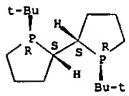
Absolute stereochemistry.

L4 ANSWER 16 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



RN 752258-19-8 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
FORMAT

L4 ANSWER 17 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:901934 CAPLUS
DOCUMENT NUMBER: 143:248273
TITLE: Preparation of enantiomerically pure 1-substituted-3-amino alcohols
INVENTOR(S): Michel, Dominique
PATENT ASSIGNEE(S): Lonza A.-G., Switz.
SOURCE: Eur. Pat. Appl., 14 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

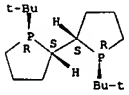
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1566383	A1	20050824	EP 2004-3809	20040219
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
AU 2005215906	A1	20050901	AU 2005-215906	20050221
CA 2556891	A1	20050901	CA 2005-2556891	20050221
WO 2005080370	A1	20050901	WO 2005-EP1781	20050221
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1720852	A1	20061115	EP 2005-715425	20050221
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR				
CN 1922168	A	20070228	CN 2005-80005452	20050221
BR 2005006796	A	20070522	BR 2005-6796	20050221
JP 2007523124	T	20070816	JP 2006-553562	20050221
SG 135196	A1	20070928	SG 2007-6103	20050221
IN 2006DN04971	A	20070817	IN 2006-DN4971	20060829
NO 2006004017	A	20060915	NO 2006-4017	20060906
KR 2007009587	A	20070118	KR 2006-718840	20060914

PRIORITY APPLN. INFO.:
EP 2004-3809 A 20040219
EP 2004-10043 A 20040428
WO 2005-EP1781 W 20050221

OTHER SOURCE(S): CASREACT 143:248273; MARPAT 143:248273
AB Provided is a process for the preparation of enantiomerically pure 1-substituted-3-amino alcs. (R)- or (S)-HOCH(R1)CH2CH2NHR2 (R1 = 2-thienyl, 2-furanyl, Ph, substituted 2-thienyl, substituted 2-furanyl, substituted Ph; R2 = C1-C4-alkyl, Ph, substituted C1-C4-alkyl, substituted Ph), particularly (S)-(-)- and (R)-(+)-3-N-methylamino-1-(2-thienyl)-1-

L4 ANSWER 17 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
propanol, by asym. hydrogenating salts of R1COCH2CH2NHR2 using Rh and an asym. ligand.
IT 752258-19-8
RL: RGT (Reagent); RACT (Reactant or reagent)
(asym. synthesis of 1-substituted -3-amino alcs. via hydrogenation of amino ketones)
RN 752258-19-8 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE
FORMAT

L4 ANSWER 18 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:324057 CAPLUS
DOCUMENT NUMBER: 142:394141
TITLE: Process for preparing cationic rhodium complexes
INVENTOR(S): Ramsden, James Andrew; Moran, Paul Henry
PATENT ASSIGNEE(S): Dow Global Technologies Inc., USA
SOURCE: PCT Int. Appl., 29 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

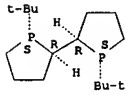
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005032712	A1	20050414	WO 2004-US32255	20040930
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2540473	A1	20050414	CA 2004-2540473	20040930
EP 1670583	A1	20060621	EP 2004-789406	20040930
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK				
CN 1863594	A	20061115	CN 2004-80028675	20040930
JP 2007508304	T	20070405	JP 2006-534118	20040930
US 2007004928	A1	20070104	US 2006-572632	20060317
US 7301039	B2	20071127		

PRIORITY APPLN. INFO.:
US 2003-507591P P 20031001
WO 2004-US32255 W 20040930

OTHER SOURCE(S): MARPAT 142:394141
AB The invention comprises a process for the preparation and isolation of a non-amorphous cationic rhodium complex having the formula: [Rh(ligand)m(diolefin)]+ X-, wherein the ligand is an enantiomerically enriched organic compound possessing one or two ligating phosphorus atoms.
IT 470480-32-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(process for preparing cationic rhodium complexes)
RN 470480-32-1 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

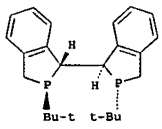
Absolute stereochemistry.

L4 ANSWER 18 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
FORMAT

L4 ANSWER 19 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:217539 CAPLUS
DOCUMENT NUMBER: 142:430411
TITLE: Practical P-chiral phosphane ligand for Rh-catalyzed asymmetric hydrogenation
AUTHOR(S): Liu, Duan; Zhang, Xumu
CORPORATE SOURCE: Department of Chemistry, The Pennsylvania State University, University Park, PA, 16802, USA
SOURCE: European Journal of Organic Chemistry (2005), (4), 646-649
CODEN: EJOCFK; ISSN: 1434-193X
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 142:430411
GI



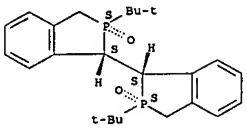
I

AB A highly electron-donating and conformationally rigid P-chiral bis(trialkylphospholane) ligand (I) (DuanPhos) has been prepared in both enantiomeric forms through a concise synthesis. The Rh complex of I has exhibited remarkably high enantioselectivities (up to >99% ee) and reactivities (up to 10,000 TON) for the hydrogenation of a wide variety of functionalized prochiral alkenes (5 different types), which provides a very practical catalytic system for the preparation of various synthetically useful chiral compds.

IT 795289-52-0P 795289-53-1P
RL: PUR (Purification or recovery); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of a P-chiral bis(trialkylphospholane) ligand for rhodium-catalyzed asym. hydrogenation)
RN 795289-52-0 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis(1,1-dimethylethyl)-2,2',3,3'-tetrahydro-, 2,2'-dioxide, (1S,1'S,2S,2'S)- (CA INDEX NAME)

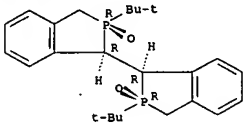
Absolute stereochemistry. Rotation (+).

L4 ANSWER 19 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



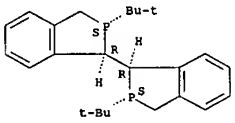
RN 795289-53-1 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis(1,1-dimethylethyl)-2,2',3,3'-tetrahydro-, 2,2'-dioxide, (1R,1'R,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



IT 528814-26-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of a P-chiral bis(trialkylphospholane) ligand for rhodium-catalyzed asym. hydrogenation)
RN 528814-26-8 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis(1,1-dimethylethyl)-2,2',3,3'-tetrahydro-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

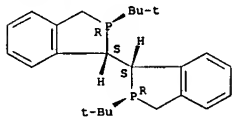
Absolute stereochemistry.



IT 795290-34-5P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of a P-chiral bis(trialkylphospholane) ligand for rhodium-catalyzed asym. hydrogenation)
RN 795290-34-5 CAPLUS

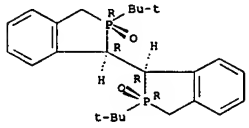
L4 ANSWER 19 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis(1,1-dimethylethyl)-2,2',3,3'-tetrahydro-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.



IT 795289-51-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(resolution with dibenzoyl tartaric acid; preparation of a P-chiral bis(trialkylphospholane) ligand for rhodium-catalyzed asym. hydrogenation)
RN 795289-51-9 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis(1,1-dimethylethyl)-2,2',3,3'-tetrahydro-, 2,2'-dioxide, (1R,1'R,2R,2'R)-rel- (CA INDEX NAME)

Relative stereochemistry.



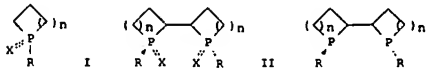
REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 20 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:99512 CAPLUS
DOCUMENT NUMBER: 142:198205
TITLE: Process for producing optically active dimer of phosphorus heterocycle
INVENTOR(S): Oohara, Nobuhiko; Imamoto, Tsuneo
PATENT ASSIGNEE(S): Nippon Chemical Industrial Co., Ltd., Japan
SOURCE: PCT Int. Appl., 42 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

Instant

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005010014	A1	20050203	WO 2004-JP10671	20040727
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1650216	A1	20060426	EP 2004-747983	20040727
R: CH, DE, GB, LI				
US 2006211888	A1	20060921	US 2006-564985	20060118
PRIORITY APPLN. INFO.:			JP 2003-280584	A 20030728
			WO 2004-JP10671	W 20040727

OTHER SOURCE(S): MARPAT 142:198205
GI



AB A compound represented by the following general formula Y-CnH2n-Y (wherein Y = halogeno or a leaving group selected among -OTs, -OTf, and -OMs; n = a number of 3 to 6) is caused to act on a primary phosphine represented by the following general formula R-PH2 (wherein R = linear, branched, or cyclic C2-20 alkyl) in the presence of a base. Subsequently, boron trihydride, oxygen, or sulfur is caused to act thereon to obtain a heterocyclic phosphorus compound represented by the following general formula (I) (wherein R = the same as defined above; n = a number of 1 to 4; X = a boron trihydride group, oxygen, or sulfur; and = = = indicates a single bond when X is a boron trihydride group, and indicates a double bond when X is

L4 ANSWER 20 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

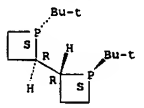
oxygen or sulfur). The compd. I is dimerized to obtain a dimer of the heterocyclic phosphorus compd., the dimer being a diphosphetane represented by the following general formula (II) (wherein R, n, and X are the same as defined above). Subsequently, the phosphorus heterocycle dimer II is subjected to deoxidn., desulfurization, or borane elimination to obtain an optically active phosphorus heterocycle dimer represented by the following general formula (III) (wherein R and n are the same as defined above). These diphosphetanes III build stable asym. spaces in coordinating to central metals and are useful as ligands of transition metal catalysts for catalytic asym. syntheses such as asym. hydrogenation.

Thus, a soln. of 200 mmol tert-butylphosphine and 200 mmol 1,3-dichloropropane in n-hexane and THF was cooled to -78°, treated dropwise with 277 mL 1.59 M BuLi/hexane (440 mmol) over 1 h, stirred at -78° for 1 h, warmed to room temp., treated with 9.6 g (300 mmol) sulfur powder, and stirred at room temp. for 2 h to give, after workup and purifn. using an alumina column, 48% 1-tert-butylphosphentane-1-sulfide (IV). A mixt. of 36 mmol sparteine and 70 mL Et2O was cooled to -78°, treated with 36 mmol s-BuLi, stirred for 1 h, treated with a soln. of 30 mmol IV in 30 mL toluene at -78° over 1 h, stirred at -78° for 5 h, treated with 45 mmol CuCl, warmed to room temp. over 2 h, and stirred at room temp. for 12 h to give, after workup, purifn. by flash chromatog., and 4 recrystns. from EtOAc, 10% II (R = tert-Bu, X = S). II (R = tert-Bu, X = S) (0.4 mmol) was dissolved in 8 mL benzene, treated with 5.8 mmol hexachlorodisilane, refluxed for 3 h, cooled to 0°, carefully treated with 30% aq. NaOH soln., heated at 50° with stirring to give, after workup and purifn. using an alumina column, 75% III (R = tert-butyl). III (R = tert-butyl) (0.3 mmol) was dissolve din 4 mL THF, cooled to 0°, added to a suspension of 0.27 mmol [rhodium(I)bis (norbornadiene)]tetrafluoroborate and 10 mL THF, stirred at room temp. for 3 h to give, after filtration through a celite column, evapn. of the filtrate, and washing the orange solid with 5 mL Et2O twice, 20% [rhodium(I)((1S,1S',2R,2R')-1,1'-di-tert-butyl[2,2']diphosphetane)(nor bornadiene)]tetrafluoroborate (V). Me α-acetamidocinnamate (1 mmol) was hydrogenated over 0.002 mmol V in methanol at room temp. for 4 h to give ≥99% D-phenylalanine Me ester (96.8% optical purity). Asym. hydrogenation of various dehydroamino acid derivs. or enamides using [rhodium(I)((1S,1S',2R,2R')-1,1'-di-tert-butyl[2,2']diphosphetane)(norborn adiene)]hexafluorophosphate gave (R)-α-amino acids and optically active amines.

IT 528814-24-6P
RL: CAT (Catalyst use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(preparation of novel optically active diphosphetanes and transition metal complexes thereof by cyclocondensation of tert-butylphosphine with dichloropropane and dimerization of phosphetane)

RN 528814-24-6 CAPLUS
CN 2,2'-Biphosphetane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

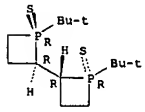
Absolute stereochemistry.



IT 735288-40-1P
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(preparation of novel optically active diphosphetanes and transition metal complexes thereof by cyclocondensation of tert-butylphosphine with dichloropropane and dimerization of phosphetane)

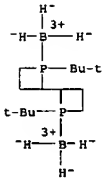
RN 735288-40-1 CAPLUS
CN 2,2'-Biphosphetane, 1,1'-bis(1,1-dimethylethyl)-, 1,1'-disulfide, (1R,1'R,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



IT 735288-29-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of novel optically active diphosphetanes and transition metal complexes thereof by cyclocondensation of tert-butylphosphine with dichloropropane and dimerization of phosphetane)

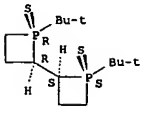
RN 735288-29-6 CAPLUS
CN Boron, [μ-[(1S,1'S,2R,2'R)-1,1'-bis(1,1-dimethylethyl)-2,2'-biphosphetane-κP1:κP1']]hexahydrodi- (9CI) (CA INDEX NAME)



IT 735288-42-3P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of novel optically active diphosphetanes and transition metal complexes thereof by cyclocondensation of tert-butylphosphine with dichloropropane and dimerization of phosphetane)

RN 735288-42-3 CAPLUS
CN 2,2'-Biphosphetane, 1,1'-bis(1,1-dimethylethyl)-, 1,1'-disulfide, (1R,1'S,2S,2'R)-rel- (9CI) (CA INDEX NAME)

Relative stereochemistry.



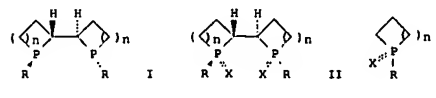
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 21 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:99511 CAPLUS
DOCUMENT NUMBER: 142:198204
TITLE: Preparation of novel optically active phosphorus-chiral diphosphetanes, intermediates of the same, and transition metal complexes containing the diphosphetanes as the ligand
INVENTOR(S): Oohara, Nobuhiko; Imamoto, Tsuneo
PATENT ASSIGNEE(S): Nippon Chemical Industrial Co., Ltd., Japan
SOURCE: PCT Int. Appl., 31 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005010013	A1	20050203	WO 2004-JP10670	20040727
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1650217	A1	20060426	EP 2004-770961	20040727
R: CH, DE, GB, LI				
US 2006189818	A1	20060824	US 2006-564984	20060118
PRIORITY APPLN. INFO.:			JP 2003-280584	A 20030728
			WO 2004-JP10670	W 20040727

OTHER SOURCE(S): MARPAT 142:198204
GI



AB Novel optically active phosphorus-chiral diphosphetanes (I) (R = C2-20 straight-chain, branched, or cyclic alkyl) and intermediates of the same (II) and (III) (R = same as above; X = BH3, O, S; the double dotted line = a single bond when X = BH3 or a double bond when X = O or S), and transition metal complex catalysts containing the diphosphetanes as the ligand I are prepared These diphosphetanes build stable asym. spaces in coordinating to central metals and are useful as ligands of transition metal catalysts for catalytic asym. syntheses such as asym.

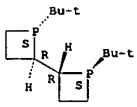
L4 ANSWER 21 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
Thus, a soln. of 200 mmol tert-butylphosphine and 200 mmol 1,3-dichloropropane in n-hexane and THF was cooled to -78°, treated dropwise with 277 mL 1.59 M BuLi/hexane (440 mmol) over 1 h, stirred at -78° for 1 h, warmed to room temp., treated with 9.6 g (300 mmol) sulfur powder, and stirred at room temp. for 2 h to give, after workup and
purifn. using an alumina column, 48% 1-tert-butylphosphentane-1-sulfide (IV). A mixt. of 36 mmol sparteine and 70 mL Et2O was cooled to -78°, treated with 36 mmol s-BuLi, stirred for 1 h, treated with a soln. of 30 mmol IV in 30 mL toluene at -78° over 1 h, stirred at -78° for 5 h, treated with 45 mmol CuCl, warmed to room temp. over 2 h, and stirred at room temp. for 12 h to give, after workup, purifn. by flash chromatog., and 4 recrystns. from EtOAc, 10% II (R = tert-Bu, X = S). II (R = tert-Bu, X = S) (0.4 mmol) was dissolved in 8 mL benzene, treated with 5.8 mmol hexachlorodisilane, refluxed for 3 h, cooled to 0°, carefully treated with 30% aq. NaOH soln., heated at 50° with stirring to give, after workup and purifn. using an alumina column, 75% I (R = tert-butyl). I (R = tert-butyl) (0.3 mmol) was dissolve din 4 mL THF, cooled to 0°, added to a suspension of 0.27 mmol [rhodium(I)bis(norbornadiene)]tetrafluoroborate and 10 mL THF, stirred at room temp. for 3 h to give, after filtration through a celite column, evapn. of the filtrate, and washing the orange solid with 5 mL Et2O twice,
20%
[rhodium(I)((1S,1S',2R,2R')-1,1'-di-tert-butyl[2,2']diphosphetane)(nor bornadiene)]tetrafluoroborate (V). Me α-acetamidocinnamate (1 mmol) was hydrogenated over 0.002 mmol V in methanol at room temp. for 4 h to give ≥99% D-phenylalanine Me ester (96.8% optical purity). Asym. hydrogenation of various dehydroamino acid derivs. or enamides using
[rhodium(I)((1S,1S',2R,2R')-1,1'-di-tert-butyl[2,2']diphosphetane)(norborn adiene)]hexafluorophosphate gave (R)-α-amino acids and optically active amines.

IT 528814-24-6P, (1S,1S',2R,2R')-1,1'-Di-tert-butyl[2,2']diphosphetane
RL: CAT (Catalyst use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(preparation of novel optically active phosphorus-chiral diphosphetanes and
transition metal complexes thereof for catalytic asym. syntheses such as asym. hydrogenation)

RN 528814-24-6 CAPLUS

CN 2,2'-Biphosphetane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.

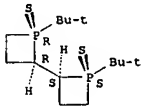


L4 ANSWER 21 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
transition metal complexes thereof for catalytic asym. syntheses such as asym. hydrogenation)

RN 735288-42-3 CAPLUS

CN 2,2'-Biphosphetane, 1,1'-bis(1,1-dimethylethyl)-, 1,1'-disulfide, (1R,1'S,2S,2'R)-rel- (9CI) (CA INDEX NAME)

Relative stereochemistry.



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
FORMAT

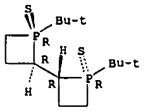
L4 ANSWER 21 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

IT 735288-40-1P
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(preparation of novel optically active phosphorus-chiral diphosphetanes and
transition metal complexes thereof for catalytic asym. syntheses such as asym. hydrogenation)

RN 735288-40-1 CAPLUS

CN 2,2'-Biphosphetane, 1,1'-bis(1,1-dimethylethyl)-, 1,1'-disulfide, (1R,1'R,2R,2'R)- (CA INDEX NAME)

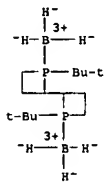
Absolute stereochemistry. Rotation (-).



IT 735288-29-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of novel optically active phosphorus-chiral diphosphetanes and
transition metal complexes thereof for catalytic asym. syntheses such as asym. hydrogenation)

RN 735288-29-6 CAPLUS

CN Boron, [μ-[(1S,1'S,2R,2'R)-1,1'-bis(1,1-dimethylethyl)-2,2'-biphosphetane-κP1:κP1']]hexahydrodi- (9CI) (CA INDEX NAME)



IT 735288-42-3P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of novel optically active phosphorus-chiral diphosphetanes and

L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:995769 CAPLUS
DOCUMENT NUMBER: 141:424300
TITLE: P-chiral phospholanes and phosphocyclic compounds and their use in asymmetric catalytic reactions
INVENTOR(S): Zhang, Xumu; Tang, Wenjun
PATENT ASSIGNEE(S): The Penn State Research Foundation, USA
SOURCE: U.S. Pat. Appl. Publ., 41 pp., Cont.-in-part of U.S. Ser. No. 291,232.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004229846	A1	20041118	US 2004-856014	20040528
US 7169953	B2	20070130		
US 2003144137	A1	20030731	US 2002-291232	20021108
US 7105702	B2	20060912		
US 2005119495	A1	20050602	US 2005-31159	20050107
US 7153809	B2	20061226		
WO 2005117907	A2	20051215	WO 2005-US14438	20050428
WO 2005117907	A3	20060908		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.:		
US 2001-336939P	P	20011109
US 2002-291232	A2	20021108
US 2004-856014	A3	20040528

OTHER SOURCE(S): CASREACT 141:424300; MARPAT 141:424300

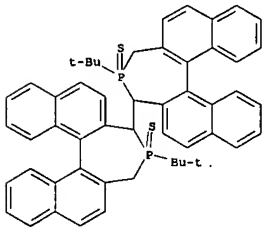
AB Chiral ligands and metal complexes based on such chiral ligands useful in asym. catalysis are disclosed. The metal complexes according to the present invention are useful as catalysts in asym. reactions, such as, hydrogenation, hydride transfer, allylic alkylation, hydrosilylation, hydroboration, hydrovinylation, hydroformylation, olefin metathesis, hydrocarboxylation, isomerization, cyclopropanation, Diels-Alder reaction,
Heck reaction, isomerization, Aldol reaction, Michael addition; epoxidn., kinetic resolution and [m+n] cycloaddn. Processes for the preparation of the
ligands are also described. Thus, preparation of (1S,1S',2R,2R')-1,1'-di-tert-butyl[2,2']diphospholanyl TangPhos was prepared starting from 1,4-dibromobutane, PCl3, and t-BuMgCl and was used as cocatalyst with [Rh(NBD)2]SbF6 for asym. hydrogenation for dehydroamino acids.

IT 610304-82-0P

L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(crystal structure; prepn. of P-chiral phospholanes and phosphocyclic compds. and their use in transition metal catalyzed asym. reactions)
RN 610304-82-0 CAPLUS
CN 3,3'-Bi-3H-dinaphtho[2,1-c:1',2'-e]phosphepin, 4,4'-bis(1,1-dimethylethyl)-4,4',5,5'-tetrahydro-, 4,4'-disulfide, (3R,3'R,4R,4'R,11bS,11'bS)-, compd. with benzene (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 528854-25-3
CMF C52 H48 P2 S2

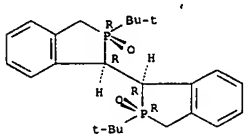


CM 2

CRN 71-43-2
CMF C6 H6

IT 795289-53-1P
RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(mol. structure; preparation of P-chiral phospholanes and phosphocyclic compds. and their use in transition metal catalyzed asym. reactions)
RN 795289-53-1 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis(1,1-dimethylethyl)-2,2',3,3'-tetrahydro-, 2,2'-dioxide, (1R,1'R,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



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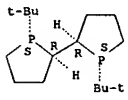
528814-21-3P 528814-22-4P 528814-23-5P
528814-24-6P 528814-25-7P 528814-26-8P
528814-29-1P 528814-59-7P 528814-60-0P
528814-61-1P 528814-62-2P 528814-63-3P
528854-26-4P 752258-19-8P 795289-54-2P
795289-58-6P 795289-59-7P 795289-60-0P
795289-61-1P 795289-62-2P 795289-63-3P
795289-64-4P 795289-65-5P 795289-66-6P
795289-67-7P 795289-68-8P 795289-69-9P
795289-70-2P 795289-71-3P 795290-28-7P
795290-29-8P 795290-30-1P 795290-31-2P
795290-32-3P 795290-33-4P 795290-34-5P
795290-37-8P 795290-66-3P 795290-67-4P
795290-68-5P 795290-69-6P 795290-70-9P
795290-72-1P 795290-73-2P 795290-74-3P
795290-75-4P 795290-76-5P 795290-77-6P
795290-78-7P 795290-79-8P 795290-80-1P
795290-81-2P 795290-82-3P 795290-83-4P
795290-84-5P 796068-79-6P 796068-80-9P
796068-81-0P 796068-84-3P 796068-85-4P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(preparation of P-chiral phospholanes and phosphocyclic compds. and their use in transition metal catalyzed asym. reactions)
RN 470480-32-1 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

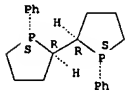
Absolute stereochemistry.



L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

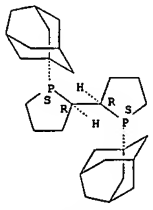
RN 528814-19-9 CAPLUS
CN 2,2'-Biphospholane, 1,1'-diphenyl-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.



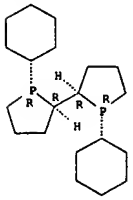
RN 528814-20-2 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(tricyclo[3.3.1.13,7]dec-1-yl)-, (1S,1'S,2R,2'R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 528814-21-3 CAPLUS
CN 2,2'-Biphospholane, 1,1'-dicyclohexyl-, (1R,1'R,2R,2'R)- (CA INDEX NAME)

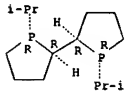
Absolute stereochemistry.



RN 528814-22-4 CAPLUS

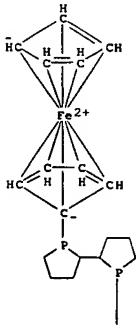
L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
CN 2,2'-Biphospholane, 1,1'-bis(1-methylethyl)-, (1R,1'R,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.



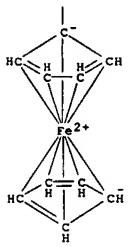
RN 528814-23-5 CAPLUS
CN Ferrocene, 1,1''-(1S,1'S,2R,2'R)-[2,2'-biphospholane]-1,1'-diylbis- (9CI) (CA INDEX NAME)

PAGE 1-A



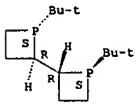
L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

PAGE 2-A



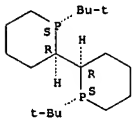
RN 528814-24-6 CAPLUS
CN 2,2'-Biphosphetane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.



RN 528814-25-7 CAPLUS
CN 2,2'-Biphosphorinane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.

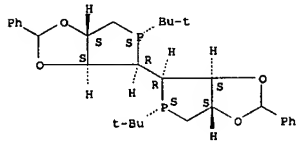


RN 528814-26-8 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis(1,1-dimethylethyl)-2,2',3,3'-tetrahydro-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

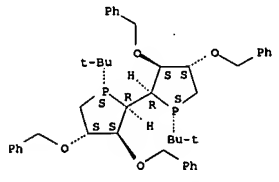
RN 528814-60-0 CAPLUS
CN 4,4'-Bi-4H-phospholo[3,4-d]-1,3-dioxole, 5,5'-bis(1,1-dimethylethyl)octahydro-2,2'-diphenyl-, (3aS,3'aS,4R,4'R,5S,5'S,6aS,6'aS)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



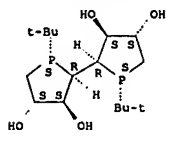
RN 528814-61-1 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-3,3',4,4'-tetrakis(phenylmethoxy)-, (1S,1'S,2R,2'R,3S,3'S,4S,4'S)- (CA INDEX NAME)

Absolute stereochemistry.



RN 528814-62-2 CAPLUS
CN [2,2'-Biphospholane]-3,3',4,4'-tetrol, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R,3S,3'S,4S,4'S)- (CA INDEX NAME)

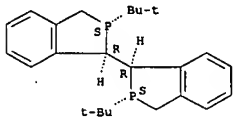
Absolute stereochemistry.



RN 528814-63-3 CAPLUS
CN 5,5'-Bi-5H-phospholo[3,4-b]-1,4-dioxin, 6,6'-bis(1,1-

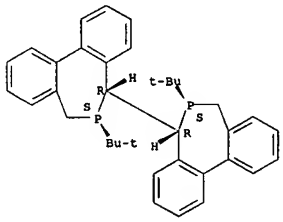
L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

Absolute stereochemistry.



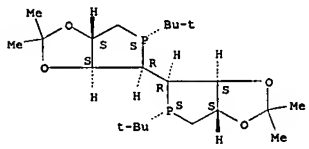
RN 528814-29-1 CAPLUS
CN 5,5'-Bi-5H-dibenzo[c,e]phosphepin, 6,6'-bis(1,1-dimethylethyl)-6,6',7,7'-tetrahydro-, (5R,5'R,6S,6'S)- (CA INDEX NAME)

Absolute stereochemistry.



RN 528814-59-7 CAPLUS
CN 4,4'-Bi-4H-phospholo[3,4-d]-1,3-dioxole, 5,5'-bis(1,1-dimethylethyl)octahydro-2,2,2',2'-tetramethyl-, (3aS,3'aS,4R,4'R,5S,5'S,6aS,6'aS)- (9CI) (CA INDEX NAME)

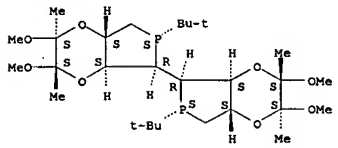
Absolute stereochemistry.



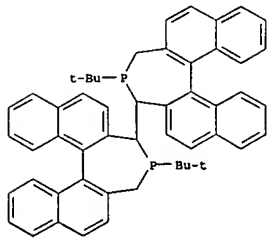
L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

dimethylethyl]dodecahydro-2,2',3,3'-tetramethoxy-2,2',3,3'-tetramethyl-, (2S,2'S,3S,3'S,4aS,4'aS,5R,5'R,6S,6'S,7aS,7'aS)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

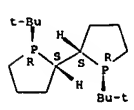


RN 528854-26-4 CAPLUS
CN 3,3'-Bi-3H-dinaphtho[2,1-c:1',2'-e]phosphepin, 4,4'-bis(1,1-dimethylethyl)-4,4',5,5'-tetrahydro-, (3R,3'R,4S,4'S,11bS,11'bS)- (9CI) (CA INDEX NAME)



RN 752258-19-8 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

Absolute stereochemistry.



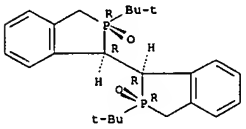
RN 795289-54-2 CAPLUS
CN Butanedioic acid, 2,3-bis(benzoyloxy)-, (2S,3S)-, compd. with

L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
(1R,1'R,2R,2'R)-2,2'-bis(1,1-dimethylethyl)-2,2',3,3'-tetrahydro-1,1'-bi-1H-isophosphindole 2,2'-dioxide (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 795289-53-1
CMF C24 H32 O2 P2

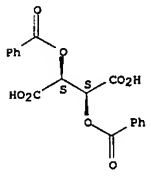
Absolute stereochemistry. Rotation (-).



CM 2

CRN 17026-42-5
CMF C18 H14 O8

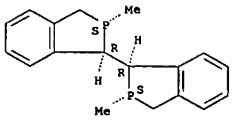
Absolute stereochemistry. Rotation (+).



RN 795289-58-6 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2',3,3'-tetrahydro-2,2'-dimethyl-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

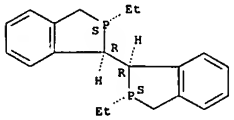
Absolute stereochemistry.

L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



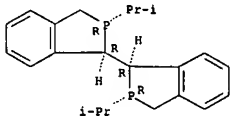
RN 795289-59-7 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-diethyl-2,2',3,3'-tetrahydro-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

Absolute stereochemistry.



RN 795289-60-0 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2',3,3'-tetrahydro-2,2'-bis(1-methylethyl)-, (1R,1'R,2R,2'R)- (CA INDEX NAME)

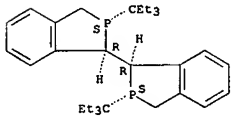
Absolute stereochemistry.



RN 795289-61-1 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis(1,1-diethylpropyl)-2,2',3,3'-tetrahydro-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

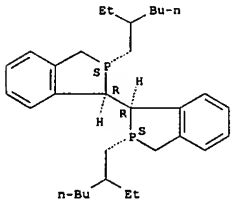
Absolute stereochemistry.

L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



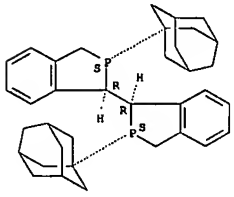
RN 795289-62-2 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis(2-ethylhexyl)-2,2',3,3'-tetrahydro-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

Absolute stereochemistry.



RN 795289-63-3 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2',3,3'-tetrahydro-2,2'-bis(tricyclo[3.3.1.13,7]dec-1-yl)-, (1R,1'R,2S,2'S)- (9CI) (CA INDEX NAME)

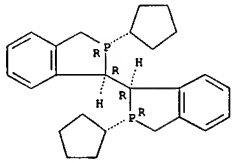
Absolute stereochemistry.



RN 795289-64-4 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-dicyclopentyl-2,2',3,3'-tetrahydro-, (1R,1'R,2R,2'R)- (CA INDEX NAME)

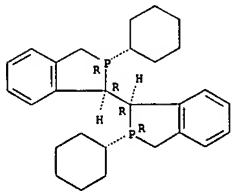
L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

Absolute stereochemistry.



RN 795289-65-5 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-dicyclohexyl-2,2',3,3'-tetrahydro-, (1R,1'R,2R,2'R)- (CA INDEX NAME)

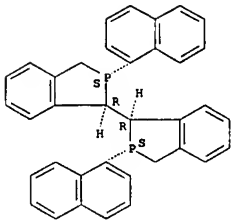
Absolute stereochemistry.



RN 795289-66-6 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2',3,3'-tetrahydro-2,2'-di-1-naphthalenyl-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

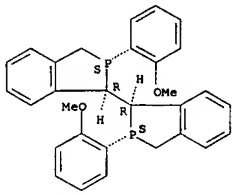
Absolute stereochemistry.

L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



RN 795289-67-7 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2',3,3'-tetrahydro-2,2'-bis(2-methoxyphenyl)-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

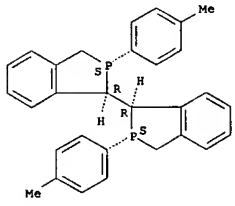
Absolute stereochemistry.



RN 795289-68-8 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis(3,5-dimethylphenyl)-2,2',3,3'-tetrahydro-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

Absolute stereochemistry.

L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



RN 795289-71-3 CAPLUS
CN Ferrocene, 1,1'''-[(1R,1'R,2S,2'S)-2,2',3,3'-tetrahydro-2,2'-dimethyl[1,1'-bi-1H-isophosphindole]-2,2'-diyl]bis- (9CI) (CA INDEX NAME)

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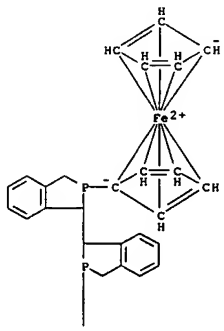
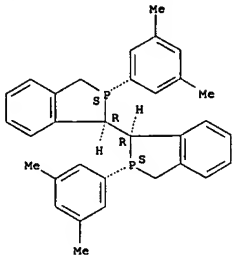
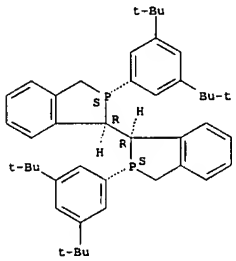


L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



RN 795289-69-9 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis[3,5-bis(1,1-dimethylethyl)phenyl]-2,2',3,3'-tetrahydro-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

Absolute stereochemistry.

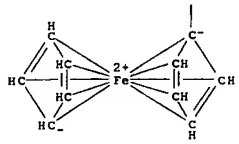


RN 795289-70-2 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2',3,3'-tetrahydro-2,2'-bis(4-methylphenyl)-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

Absolute stereochemistry.

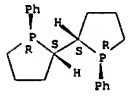
L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

PAGE 2-A

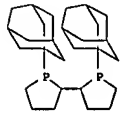


RN 795290-28-7 CAPLUS
CN 2,2'-Biphospholane, 1,1'-diphenyl-, (1R,1R,2S,2'S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



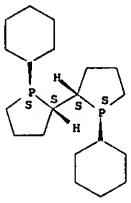
RN 795290-29-8 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(tricyclo[3.3.1.13,7]dec-1-yl)-, (1R,1R,2S,2'S)- (9CI) (CA INDEX NAME)



RN 795290-30-1 CAPLUS
CN 2,2'-Biphospholane, 1,1'-dicyclohexyl-, (1S,1'S,2S,2'S)- (CA INDEX NAME)

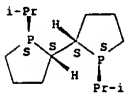
Absolute stereochemistry.

L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



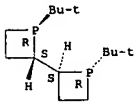
RN 795290-31-2 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1-methylethyl)-, (1S,1S,2S,2'S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 795290-32-3 CAPLUS
CN 2,2'-Biphosphetane, 1,1'-bis(1,1-dimethylethyl)-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

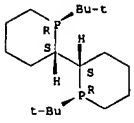
Absolute stereochemistry.



RN 795290-33-4 CAPLUS
CN 2,2'-Biphosphorinane, 1,1'-bis(1,1-dimethylethyl)-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

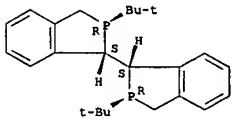
Absolute stereochemistry.

L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



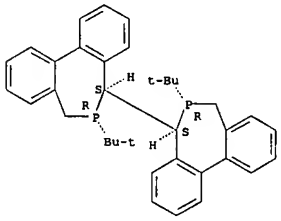
RN 795290-34-5 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis(1,1-dimethylethyl)-2,2',3,3'-tetrahydro-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.



RN 795290-37-8 CAPLUS
CN 5,5'-Bi-5H-dibenzo[c,e]phosphepin, 6,6'-bis(1,1-dimethylethyl)-6,6',7,7'-tetrahydro-, (5S,5'S,6R,6'R)- (CA INDEX NAME)

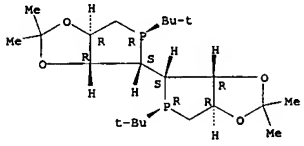
Absolute stereochemistry.



RN 795290-66-3 CAPLUS
CN 4,4'-Bi-4H-phospholo[3,4-d]-1,3-dioxole, 5,5'-bis(1,1-dimethylethyl)octahydro-2,2,2',2'-tetramethyl-, (3aR,3'aR,4S,4'S,5R,5'R,6aR,6'aR)- (9CI) (CA INDEX NAME)

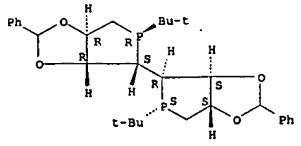
L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

Absolute stereochemistry.



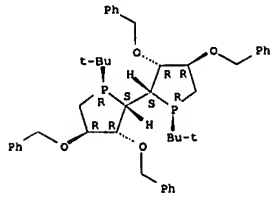
RN 795290-67-4 CAPLUS
CN 4,4'-Bi-4H-phospholo[3,4-d]-1,3-dioxole, 5,5'-bis(1,1-dimethylethyl)octahydro-2,2'-diphenyl-, (3aR,3'aS,4S,4'R,5R,5'S,6aR,6'aS)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 795290-68-5 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-3,3',4,4'-tetrakis(phenylmethoxy)-, (1R,1'R,2S,2'S,3R,3'R,4R,4'R)- (CA INDEX NAME)

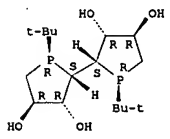
Absolute stereochemistry.



RN 795290-69-6 CAPLUS
CN [2,2'-Biphospholane]-3,3',4,4'-tetrol, 1,1'-bis(1,1-dimethylethyl)-, (1R,1'R,2S,2'S,3R,3'R,4R,4'R)- (CA INDEX NAME)

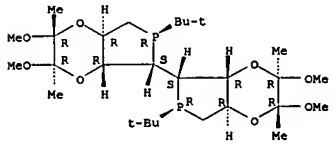
L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

Absolute stereochemistry.



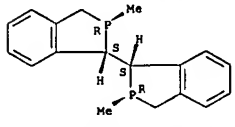
RN 795290-70-9 CAPLUS
CN 5,5'-Bi-5H-phospholo[3,4-b]-1,4-dioxin, 6,6'-bis(1,1-dimethylethyl)dodecahydro-2,2',3,3'-tetramethoxy-2,2',3,3'-tetramethyl-, (2R,2'R,3R,3'R,4aR,4'aR,5S,5'S,6R,6'R,7aR,7'aR)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 795290-72-1 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2',3,3'-tetrahydro-2,2'-dimethyl-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

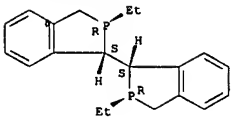
Absolute stereochemistry.



RN 795290-73-2 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-diethyl-2,2',3,3'-tetrahydro-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

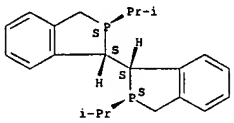
Absolute stereochemistry.

L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



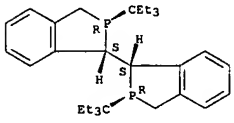
RN 795290-74-3 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2',3,3'-tetrahydro-2,2'-bis(1-methylethyl)-, (1S,1'S,2S,2'S)- (CA INDEX NAME)

Absolute stereochemistry.



RN 795290-75-4 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis(1,1-diethylpropyl)-2,2',3,3'-tetrahydro-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

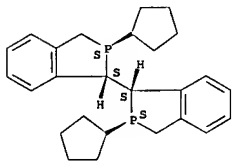
Absolute stereochemistry.



RN 795290-76-5 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis(2-ethylhexyl)-2,2',3,3'-tetrahydro-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

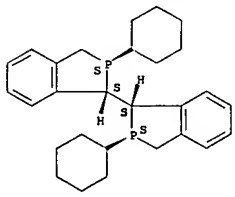
Absolute stereochemistry.

L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



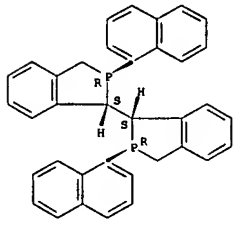
RN 795290-79-8 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-dicyclohexyl-2,2',3,3'-tetrahydro-, (1S,1'S,2S,2'S)- (CA INDEX NAME)

Absolute stereochemistry.

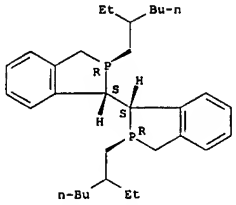


RN 795290-80-1 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2',3,3'-tetrahydro-2,2'-di-1-naphthalenyl-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.

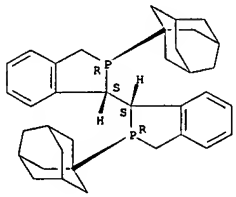


L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



RN 795290-77-6 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2',3,3'-tetrahydro-2,2'-bis(tricyclo[3.3.1.13,7]dec-1-yl)-, (1S,1'S,2R,2'R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

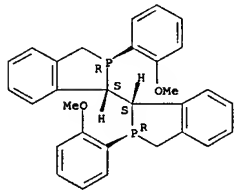


RN 795290-78-7 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-dicyclopentyl-2,2',3,3'-tetrahydro-, (1S,1'S,2S,2'S)- (CA INDEX NAME)

Absolute stereochemistry.

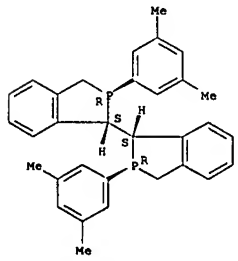
L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
RN 795290-81-2 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2',3,3'-tetrahydro-2,2'-bis(2-methoxyphenyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.



RN 795290-82-3 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis(3,5-dimethylphenyl)-2,2',3,3'-tetrahydro-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

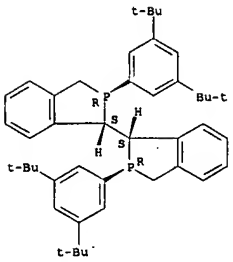
Absolute stereochemistry.



RN 795290-83-4 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis[3,5-bis(1,1-dimethylethyl)phenyl]-2,2',3,3'-tetrahydro-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

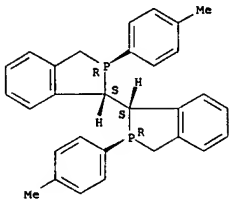
Absolute stereochemistry.

L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



RN 795290-84-5 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2',3,3'-tetrahydro-2,2'-bis(4-methylphenyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.

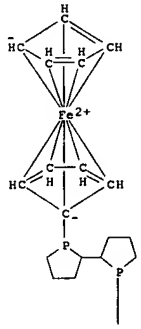


RN 796068-79-6 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2',3,3'-tetrahydro-2,2'-diphenyl-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

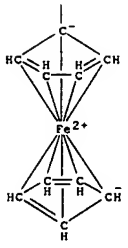
Absolute stereochemistry.

L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

PAGE 1-A



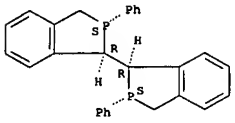
PAGE 2-A



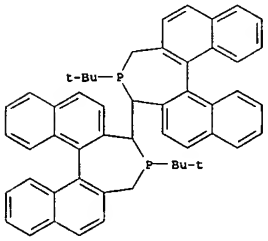
RN 796068-84-3 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2',3,3'-tetrahydro-2,2'-diphenyl-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.

L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

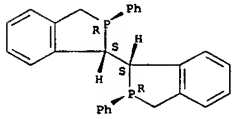


RN 796068-80-9 CAPLUS
CN 3,3'-Bi-3H-dinaphtho[2,1-c:1',2'-e]phosphepin, 4,4'-bis(1,1-dimethylethyl)-4,4',5,5'-tetrahydro-, (3S,3'S,4R,4'R,11bR,11'bR)- (9CI) (CA INDEX NAME)



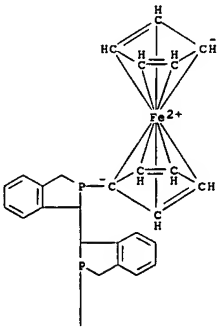
RN 796068-81-0 CAPLUS
CN Ferrocene, 1,1''-(1R,1'R,2S,2'S)-[2,2'-biphospholane]-1,1'-diylbis- (9CI) (CA INDEX NAME)

L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

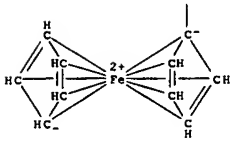


RN 796068-85-4 CAPLUS
CN Ferrocene, 1,1''-[(1S,1'S,2R,2'R)-1,1',3,3'-tetrahydro[1,1'-bi-2H-isophosphindole]-2,2'-diyl]bis- (9CI) (CA INDEX NAME)

PAGE 1-A

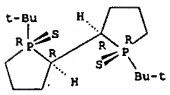


PAGE 2-A



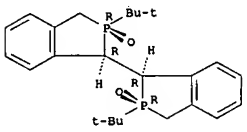
L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
IT 470480-34-3P 795289-51-9P 795289-52-0P
795289-55-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of P-chiral phospholanes and phosphocyclic compds. and their
use in transition metal catalyzed asym. reactions)
RN 470480-34-3 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, 1,1'-disulfide, (1R,1'R,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.



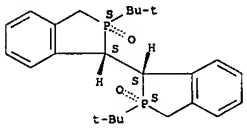
RN 795289-51-9 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis(1,1-dimethylethyl)-2,2',3,3'-tetrahydro-, 2,2'-dioxide, (1R,1'R,2R,2'R)-rel- (CA INDEX NAME)

Relative stereochemistry.



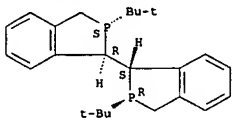
RN 795289-52-0 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis(1,1-dimethylethyl)-2,2',3,3'-tetrahydro-, 2,2'-dioxide, (1S,1'S,2S,2'S)- (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



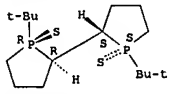
L4 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
RN 795289-55-3 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis(1,1-dimethylethyl)-2,2',3,3'-tetrahydro-, (1R,1'S,2S,2'R)-rel- (CA INDEX NAME)

Relative stereochemistry.



IT 528813-61-8P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of P-chiral phospholanes and phosphocyclic compds. and their
use in transition metal catalyzed asym. reactions)
RN 528813-61-8 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, 1,1'-disulfide, (1R,1'S,2S,2'R)-rel- (9CI) (CA INDEX NAME)

Relative stereochemistry.



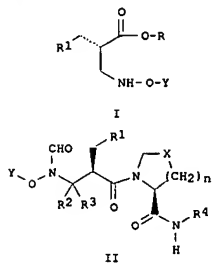
REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 23 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:740215 CAPLUS
DOCUMENT NUMBER: 141:261060
TITLE: Process for preparing β-amino acid intermediates in the synthesis of aminoacylpyrrolidinecarboxamides and related antibacterial compounds
INVENTOR(S): Prashad, Mahavir; Kim, Hang-yong; Hu, Bin; Slade, Joel; Kapa, Prasad Koteswara; Girgis, Michael John
PATENT ASSIGNEE(S): Novartis Ag, Switz.; Novartis Pharma GmbH
SOURCE: PCT Int. Appl., 52 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 2004076053	A2	20040910	WO 2004-US5159		20040220
WO 2004076053	A3	20041202			
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI					
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG					
AU 2004216178	A1	20040910	AU 2004-216178		20040220
CA 2516465	A1	20040910	CA 2004-2516465		20040220
EP 1599440	A2	20051130	EP 2004-713381		20040220
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK					
BR 2004007448	A	20060131	BR 2004-7448		20040220
CN 1759097	A	20060412	CN 2004-80006326		20040220
JP 2006519786	T	20060831	JP 2006-503764		20040220
IN 2005CN01956	A	20070831	IN 2005-CN1956		20050818
MX 2005PA08842	A	20051005	MX 2005-PA8842		20050819
US 2007179298	A1	20070802	US 2007-544919		20070424
PRIORITY APPLN. INFO.:			US 2003-449015P	P	20030221
			US 2003-449016P	P	20030221
			US 2003-449017P	P	20030221
			WO 2004-US5159	A	20040220

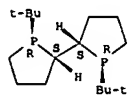
OTHER SOURCE(S): CASREACT 141:261060; MARPAT 141:261060
GI

L4 ANSWER 23 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



AB β-Amino acid derivs. I (R is alkyl, R1-R3 are H or alkyl or R2R3C are cycloalkyl, Y is a protecting group), intermediates in the synthesis of aminoacyl azacycloalkanes II [same R-R3 and Y, R4 is aryl or heteroaryl, n
is 0-3, X is CH2, S, CHOH, CH(OR), CH(SH), CF2, C:N(OR) or CHF] were prepared by hydrogenation of corresponding α-alkylidene derivs. in the presence of a chiral ligand and a catalytic amount of a hydrogenation catalyst. Thus, a mixture of 2-[[(phenylmethoxy)amino]methyl]-2-hexenoic acid Me ester (.apprx. 1:1 E/Z, preparation given), bis(norbornadiene)rhodium(I) tetrafluoroborate and (1S,1'S,2R,2'R)-TangPhos in deoxygenated methanol in a Parr bottle is hydrogenated under H2 (45-55 psi) at room temperature for 24 h to afford 94 % 2-[[(phenylmethoxy)amino]methyl]-(2S)-hexanoic acid Me in 95 % yield (R:S = 98:2).
IT 752258-19-8, (1R,1'R,2S,2'S)-TangPhos
RL: CAT (Catalyst use); USES (Uses)
((1R,1'R,2S,2'S)-TangPhos; preparation of β-amino acid intermediates in
synthesis of aminoacylpyrrolidinecarboxamides and related antibacterial
compds.)
RN 752258-19-8 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

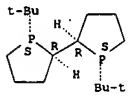
Absolute stereochemistry.



IT 470480-32-1

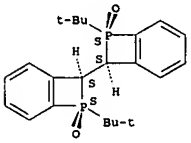
L4 ANSWER 23 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
RL: CAT (Catalyst use); USES (Uses)
(prepn. of β-amino acid intermediates in synthesis of aminoacylpyrrolidinecarboxamides and related antibacterial compds.)
RN 470480-32-1 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.



L4 ANSWER 24 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:626139 CAPLUS
DOCUMENT NUMBER: 141:313977
TITLE: Optically active 1,1'-di-tert-butyl-2,2'-dibenzophosphetenyl: a highly strained P-stereogenic diphosphine ligand
AUTHOR(S): Imamoto, Tsuneo; Crepy, Karen V. L.; Katagiri, Kosuke
CORPORATE SOURCE: Department of Chemistry, Faculty of Science, Chiba University, Inage-ku, Chiba, 263-8522, Japan
SOURCE: Tetrahedron: Asymmetry (2004), 15(14), 2213-2218
CODEN: TASYE3; ISSN: 0957-4166
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 141:313977
AB Both enantiomers of 1,1'-di-tert-butyl-2,2'-dibenzophosphetenyl were prepared from 2-bromobenzyl chloride and tert-butyldichlorophosphine. These ligands exhibited excellent enantioselectivity in the rhodium catalyzed asym. hydrogenation of Me α-acetylaminocinnamate.
IT 765308-41-6P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of optically active 1,1'-di-tert-butyl-2,2'-bibenzophosphetenyl as chiral ligand in rhodium-catalyzed stereoselective hydrogenations)
RN 765308-41-6 CAPLUS
CN 8,8'-Bi-7-phosphabicyclo[4.2.0]octa-1,3,5-triene, 7,7'-bis(1,1-dimethylethyl)-, 7,7'-dioxide, (7S,7'S,8S,8'S)- (CA INDEX NAME)

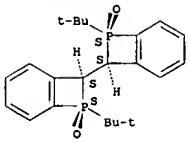
Absolute stereochemistry.



IT 765308-43-8P
RL: PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)
(preparation of optically active 1,1'-di-tert-butyl-2,2'-bibenzophosphetenyl as chiral ligand in rhodium-catalyzed stereoselective hydrogenations)
RN 765308-43-8 CAPLUS
CN 8,8'-Bi-7-phosphabicyclo[4.2.0]octa-1,3,5-triene, 7,7'-bis(1,1-dimethylethyl)-, 7,7'-dioxide, (7R,7'R,8R,8'R)-rel- (CA INDEX NAME)

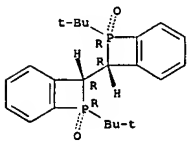
Relative stereochemistry.

L4 ANSWER 24 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



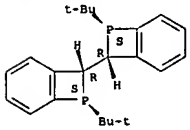
IT 765308-42-7P 765308-44-9P 765308-45-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of optically active 1,1'-di-tert-butyl-2,2'-bibenzophosphetenyl as chiral ligand in rhodium-catalyzed stereoselective hydrogenations)
RN 765308-42-7 CAPLUS
CN 8,8'-Bi-7-phosphabicyclo[4.2.0]octa-1,3,5-triene, 7,7'-bis(1,1-dimethylethyl)-, 7,7'-dioxide, (7R,7'R,8R,8'R)- (CA INDEX NAME)

Absolute stereochemistry.



RN 765308-44-9 CAPLUS
CN 8,8'-Bi-7-phosphabicyclo[4.2.0]octa-1,3,5-triene, 7,7'-bis(1,1-dimethylethyl)-, (7S,7'S,8R,8'R)- (CA INDEX NAME)

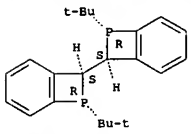
Absolute stereochemistry.



RN 765308-45-0 CAPLUS
CN 8,8'-Bi-7-phosphabicyclo[4.2.0]octa-1,3,5-triene, 7,7'-bis(1,1-dimethylethyl)-, (7R,7'R,8S,8'S)- (CA INDEX NAME)

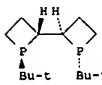
Absolute stereochemistry.

L4 ANSWER 24 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

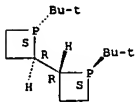
L4 ANSWER 25 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:536413 CAPLUS
DOCUMENT NUMBER: 141:174232
TITLE: Optically active 1,1'-di-tert-butyl-2,2'-diphosphetanyl and its application in rhodium-catalyzed asymmetric hydrogenations
AUTHOR(S): Imamoto, Tsuneo; Oohara, Nobuhiko; Takahashi, Hidetoshi
CORPORATE SOURCE: Department of Chemistry, Faculty of Science, Chiba University, Chiba, 263-8522, Japan
SOURCE: Synthesis (2004), (9), 1353-1358
CODEN: SYNTBF; ISSN: 0039-7881
PUBLISHER: Georg Thieme Verlag
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 141:174232
GI



Bu-t Bu-t I

AB (1S,1'S,2R,2'R)-1,1'-Di-tert-butyl-2,2'-diphosphetanyl (I) was prepared from tert-butylphosphine via phosphine-boranes as intermediates. The rhodium complex of the ligand was used as a highly efficient catalyst in asym. hydrogenations of α-acetyl-aminoacrylates and α-substituted enamides.
IT 528814-24-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and catalyst use of norbornadiene-DiSquareP*-rhodiums via deboronation of bis(phosphetane-borane) followed by complexation with bisnorbornadienerhodium)
RN 528814-24-6 CAPLUS
CN 2,2'-Biphosphetane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

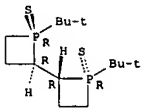
Absolute stereochemistry.



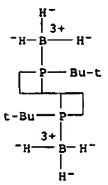
IT 735288-40-1P

L4 ANSWER 25 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and ligand use of DiSquareP* via heterocyclization of t-butylphosphine with dichloropropane followed by sulfurization, sparteine-catalyzed stereoselective dimerization, and desulfurization)
RN 735288-40-1 CAPLUS
CN 2,2'-Biphosphetane, 1,1'-bis(1,1-dimethylethyl)-, 1,1'-disulfide, (1R,1'R,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).

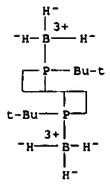


IT 735288-29-6P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(stereoselective preparation and crystal structure of bis(phosphetane-borane) via heterocyclization of t-butylphosphine with dichloropropane followed by boronation and sparteine-catalyzed stereoselective dimerization in the preparation of DiSquareP*)
RN 735288-29-6 CAPLUS
CN Boron, [μ-[(1S,1'S,2R,2'R)-1,1'-bis(1,1-dimethylethyl)-2,2'-biphosphetane-κP1:κP1']]hexahydrodi- (9CI) (CA INDEX NAME)



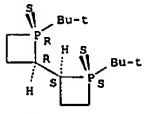
IT 736140-19-5P
RL: SPN (Synthetic preparation); PREP (Preparation)
(stereoselective preparation of di(t-butyl)diphosphetanyl diborane via heterocyclization of t-butylphosphine with dichloropropane followed by addition of borane and sparteine-catalyzed stereoselective dimerization)
RN 736140-19-5 CAPLUS

L4 ANSWER 25 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
CN Boron, [μ-[rel-(1R,1'S,2S,2'R)-1,1'-bis(1,1-dimethylethyl)-2,2'-biphosphetane-κP1:κP1']]hexahydrodi- (9CI) (CA INDEX NAME)



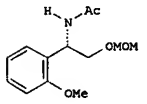
IT 735288-42-3P
RL: SPN (Synthetic preparation); PREP (Preparation)
(stereoselective preparation of di(t-butyl)diphosphetanyl disulfide via heterocyclization of t-butylphosphine with dichloropropane followed by sulfurization and sparteine-catalyzed stereoselective dimerization)
RN 735288-42-3 CAPLUS
CN 2,2'-Biphosphetane, 1,1'-bis(1,1-dimethylethyl)-, 1,1'-disulfide, (1R,1'S,2S,2'R)-rel- (9CI) (CA INDEX NAME)

Relative stereochemistry.



REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

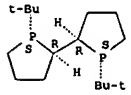
L4 ANSWER 26 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:390373 CAPLUS
DOCUMENT NUMBER: 141:140153
TITLE: Asymmetric Hydrogenation of o-Alkoxy-Substituted Arylenamides
AUTHOR(S): Le, Julie Cong-Dung; Pagenkopf, Brian L.
CORPORATE SOURCE: Department of Chemistry and Biochemistry, University of Texas at Austin, Austin, TX, 78712, USA
SOURCE: Journal of Organic Chemistry (2004), 69(12), 4177-4180
CODEN: JOCEAH; ISSN: 0022-3263
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 141:140153
GI



I

AB A series of (2-alkoxyaryl)glycinols, e.g., I, have been prepared in very good ee by asym. hydrogenation with cationic rhodium Me-BPE or Me-DuPhos complexes. It has been shown that the presence of ortho substituents on related α-arylenamides causes a decrease in enantioselectivity. However, in this study it was found that o-alkoxy α-arylenamides were reduced with high enantioselectivity irresp. of substituent size.
IT 470480-32-1
RL: CAT (Catalyst use); USES (Uses)
(stereoselective preparation of N-acetyl-O-methoxymethyl-arylglycinols via oxidation of acetophenones followed by O-protection, oximation, reduction, and asym. hydrogenation using chiral diphosphine ligands)
RN 470480-32-1 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 26 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

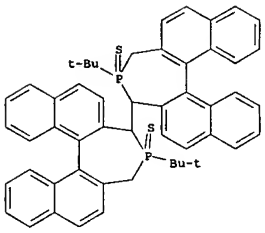
L4 ANSWER 27 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:655955 CAPLUS
DOCUMENT NUMBER: 139:307850
TITLE: A bisphosphepin ligand with stereogenic phosphorus centers for the practical synthesis of β-aryl-β-amino acids by asymmetric hydrogenation
AUTHOR(S): Tang, Wenjun; Wang, Weimin; Chi, Yongxiang; Zhang, Xumu
CORPORATE SOURCE: Department of Chemistry, The Pennsylvania State University, University Park, PA, 16802, USA
SOURCE: Angewandte Chemie, International Edition (2003), 42(30), 3509-3511
CODEN: ACIEF5; ISSN: 1433-7851
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 139:307850

AB A new chiral bisphosphepin ligand (I) comprising both double C2-chirality and stereogenic phosphorus centers was developed for the asym. hydrogenation of (Z)-β-(acylamino)acrylic acid derivs. Lithiation of (S)-2,2'-dimethyl-1,1'-binaphthyl followed by reaction with tBuPCl2 and sulfur afforded 4-tert-butyldinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin 4-sulfide, which was oxidatively coupled to give (RP,RP')-P,P'-disulfide of I (3). Crystal structure of 3 was determined Desulfurization of 3 by SiCl6 gave ligand I [(SP,SP',S)-1, BINAPINE], which was tested for rhodium-catalyzed asym. hydrogenation of dehydro-β-amino acids. Excellent enantioselectivities and reactivities were observed in the rhodium-catalyzed asym. hydrogenation of a (Z)-Ar(NHAc)C:CHCO2Me (Ar = 4-X-C6H4, 2-MeC6H4, 2-MeOC6H4, 3-pyridinyl; X = H, F, Cl, Br, Me, MeO, Ph, PhCH2O) giving (R)-Ar(NHAc)CHCH2CO2Me β-amino acids, using new ligand I. As the substrates for the asym. hydrogenation can be prepared readily, the new rhodium-BINAPINE catalyst provides an efficient method for the practical synthesis of chiral β-aryl-β-amino acids.

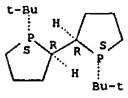
IT 528854-25-3P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(absolute configuration, mol. structure, desulfurization; preparation of C2-chiral bisphosphepin ligand and rhodium-catalyzed asym. hydrogenation of β-amino acids)
RN 528854-25-3 CAPLUS
CN 3,3'-Bi-3H-dinaphtho[2,1-c:1',2'-e]phosphepin, 4,4'-bis(1,1-dimethylethyl)-4,4',5,5'-tetrahydro-, 4,4'-disulfide, (3R,3'R,4R,4'R,11bS,11'bS)- (9CI) (CA INDEX NAME)

L4 ANSWER 27 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



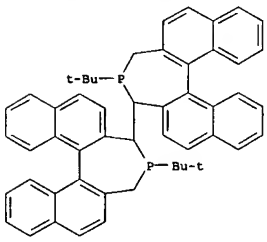
IT 470480-32-1, (S,S,R,R)-TangPhos
RL: CAT (Catalyst use); USES (Uses)
(asym. hydrogenation cocatalyst; preparation of C2-chiral bisphosphepin ligand and rhodium-catalyzed asym. hydrogenation of β-amino acids)
RN 470480-32-1 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.



IT 528854-26-4P
RL: CAT (Catalyst use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(complexation, hydrogenation catalyst; preparation of C2-chiral bisphosphepin ligand and rhodium-catalyzed asym. hydrogenation of β-amino acids)
RN 528854-26-4 CAPLUS
CN 3,3'-Bi-3H-dinaphtho[2,1-c:1',2'-e]phosphepin, 4,4'-bis(1,1-dimethylethyl)-4,4',5,5'-tetrahydro-, (3R,3'R,4S,4'S,11bS,11'bS)- (9CI) (CA INDEX NAME)

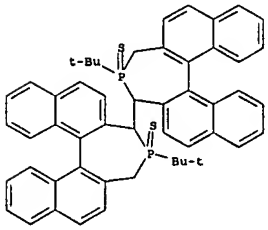
L4 ANSWER 27 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



IT 610304-82-0P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(crystal structure; preparation of C2-chiral bisphosphepin ligand and rhodium-catalyzed asym. hydrogenation of β-amino acids)
RN 610304-82-0 CAPLUS
CN 3,3'-Bi-3H-dinaphtho[2,1-c:1',2'-e]phosphepin, 4,4'-bis(1,1-dimethylethyl)-4,4',5,5'-tetrahydro-, 4,4'-disulfide, (3R,3'R,4R,4'R,11bS,11'bS)-, compd. with benzene (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 528854-25-3
CMF C52 H48 P2 S2



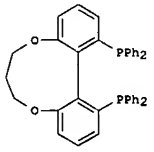
CM 2

CRN 71-43-2

L4 ANSWER 27 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
CMF C6 H6

REFERENCE COUNT: 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE
FORMAT

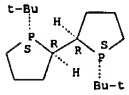
L4 ANSWER 28 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:541308 CAPLUS
DOCUMENT NUMBER: 139:230354
TITLE: Enantioselective Hydrogenation of Tetrasubstituted Olefins of Cyclic β-(Acylamino)acrylates
AUTHOR(S): Tang, Wenjun; Wu, Shulin; Zhang, Xumu
CORPORATE SOURCE: Department of Chemistry, Pennsylvania State University, University Park, PA, 16802, USA
SOURCE: Journal of the American Chemical Society (2003), 125(32), 9570-9571
CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 139:230354
GI



I

AB Hydrogenation of a series of cyclic β-(acylamino)acrylates with a tetrasubstituted olefin structure has been accomplished successfully with the use of Ru catalysts with chiral biaryl ligands such as C3-TunaPhos (I), and up to over 99% ee's have been achieved. This methodol. provides an efficient catalytic method for the synthesis of both cis and trans chiral cyclic β-amino acid derivs.
IT 470480-32-1, (S,S,R,R)-TangPhos
RL: CAT (Catalyst use); USES (Uses)
(stereoselective hydrogenation of cyclic β-(acylamino)acrylates with tetrasubstituted olefin structure)
RN 470480-32-1 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.

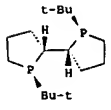


L4 ANSWER 28 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
REFERENCE COUNT: 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE
FORMAT

L4 ANSWER 29 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:396818 CAPLUS
DOCUMENT NUMBER: 138:401901
TITLE: P-chiral phospholanes and phosphocyclic compounds and their use in asymmetric catalytic reactions
INVENTOR(S): Zhang, Xumu; Tang, Wenjun
PATENT ASSIGNEE(S): The Penn State Research Foundation, USA
SOURCE: PCT Int. Appl., 70 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003042135	A2	20030522	WO 2002-US35788	20021108
WO 2003042135	A3	20031224		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2466449	A1	20030522	CA 2002-2466449	20021108
AU 2002363788	A1	20030526	AU 2002-363788	20021108
EP 1451133	A2	20040901	EP 2002-803182	20021108
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
JP 2005509012	T	20050407	JP 2003-543975	20021108
CN 1608074	A	20050420	CN 2002-826029	20021108
PRIORITY APPLN. INFO.:			US 2001-336939P	P 20011109
			WO 2002-US35788	W 20021108

OTHER SOURCE(S): CASREACT 138:401901; MARPAT 138:401901
GI



I

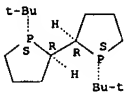
AB Chiral ligands and metal complexes based on such chiral ligands useful in asym. catalysis are disclosed. The metal complexes according to the

L4 ANSWER 29 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
present invention are useful as catalysts in asym. reactions, such as, hydrogenation, hydride transfer, allylic alkylation, hydrosilylation, hydroboration, hydrovinylation, hydroformylation, olefin metathesis, hydrocarboxylation, isomerization, cyclopropanation. Diels-Alder reaction, Heck reaction, isomerization, Aldol reaction, Michael addn.; epoxidn., kinetic resoln. and [m+n] cycloaddn. Processes for the prepn. of the ligands are also described. Thus, Grignard reaction of BrMgCH2(CH2)2CH2MgBr with PCl3 in the presence of t-BuMgCl in THF followed
by thianation gave 1-tert-butylphospholane 1-sulfide which on BuLi/CuCl2-mediated coupling in presence of (-)-sparteine followed desulfurization with hexachlorodisilane/C6H6 gave title phospholane, TangPhos I. [Rh(COD)2]BF4-I mediated asym. catalytic reactions are described.

IT 470480-32-1P 528814-19-9P 528814-20-2P
528814-21-3P 528814-22-4P 528814-23-5P
528814-24-6P 528814-25-7P 528814-26-8P
528814-29-1P 528814-59-7P 528814-60-0P
528814-61-1P 528814-62-2P 528814-63-3P
528854-26-4P
RL: CAT (Catalyst use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(preparation of phosphorus-chiral phospholanes and related phosphocyclic
compds. and their use as cocatalysts in asym. catalytic reactions)

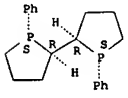
RN 470480-32-1 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.



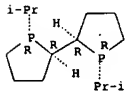
RN 528814-19-9 CAPLUS
CN 2,2'-Biphospholane, 1,1'-diphenyl-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.



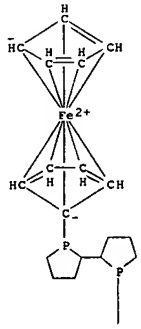
RN 528814-20-2 CAPLUS

L4 ANSWER 29 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



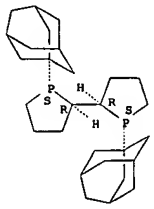
RN 528814-23-5 CAPLUS
CN Ferrocene, 1,1''-(1S,1'S,2R,2'R)-(2,2'-biphospholane]-1,1'-diylbis- (9CI) (CA INDEX NAME)

PAGE 1-A



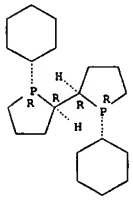
L4 ANSWER 29 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
CN 2,2'-Biphospholane, 1,1'-bis(tricyclo[3.3.1.13,7]dec-1-yl)-, (1S,1'S,2R,2'R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 528814-21-3 CAPLUS
CN 2,2'-Biphospholane, 1,1'-dicyclohexyl-, (1R,1'R,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.

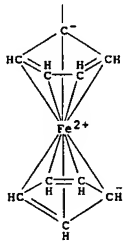


RN 528814-22-4 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1-methylethyl)-, (1R,1'R,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.

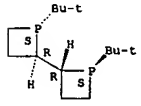
L4 ANSWER 29 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

PAGE 2-A



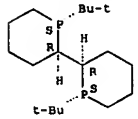
RN 528814-24-6 CAPLUS
CN 2,2'-Biphosphetane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.



RN 528814-25-7 CAPLUS
CN 2,2'-Biphosphorinane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

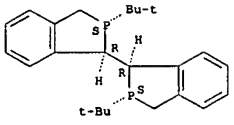
Absolute stereochemistry.



RN 528814-26-8 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2'-bis(1,1-dimethylethyl)-2,2',3,3'-tetrahydro-, (1R,1'R,2S,2'S)- (CA INDEX NAME)

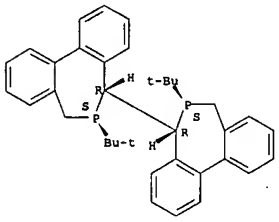
Absolute stereochemistry.

L4 ANSWER 29 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



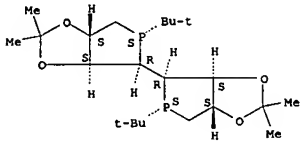
RN 528814-29-1 CAPLUS
CN 5,5'-Bi-5H-dibenzo[c,e]phosphepin, 6,6'-bis(1,1-dimethylethyl)-6,6',7,7'-tetrahydro-, (5R,5'R,6S,6'S)- (CA INDEX NAME)

Absolute stereochemistry.



RN 528814-59-7 CAPLUS
CN 4,4'-Bi-4H-phospholo[3,4-d]-1,3-dioxole, 5,5'-bis(1,1-dimethylethyl)octahydro-2,2,2',2'-tetramethyl-, (3aS,3'aS,4R,4'R,5S,5'S,6aS,6'aS)- (9CI) (CA INDEX NAME)

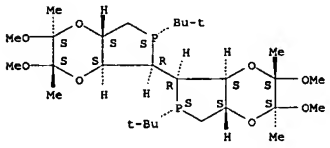
Absolute stereochemistry.



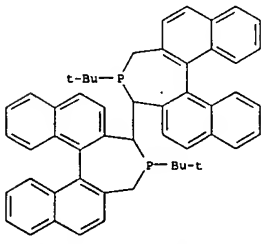
RN 528814-60-0 CAPLUS
CN 4,4'-Bi-4H-phospholo[3,4-d]-1,3-dioxole, 5,5'-bis(1,1-

L4 ANSWER 29 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
RN 528814-63-3 CAPLUS
CN 5,5'-Bi-5H-phospholo[3,4-b]-1,4-dioxin, 6,6'-bis(1,1-dimethylethyl)dodecahydro-2,2',3,3'-tetramethoxy-2,2',3,3'-tetramethyl-, (2S,2'S,3S,3'S,4aS,4'aS,5R,5'R,6S,6'S,7aS,7'aS)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 528854-26-4 CAPLUS
CN 3,3'-Bi-3H-dinaphtho[2,1-c:1',2'-e]phosphepin, 4,4'-bis(1,1-dimethylethyl)-4,4',5,5'-tetrahydro-, (3R,3'R,4S,4'S,11bS,11'bS)- (9CI) (CA INDEX NAME)

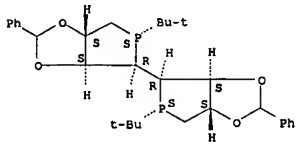


IT 470480-34-3P 528854-25-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of phosphorus-chiral phospholanes and related phosphocyclic
compds. and their use as cocatalysts in asym. catalytic reactions)
RN 470480-34-3 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, 1,1'-disulfide, (1R,1'R,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.

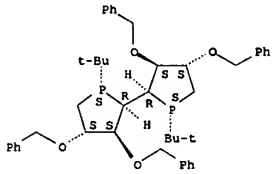
L4 ANSWER 29 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
dimethylethyl)octahydro-2,2'-diphenyl-, (3aS,3'aS,4R,4'R,5S,5'S,6aS,6'aS)-
(9CI) (CA INDEX NAME)

Absolute stereochemistry.



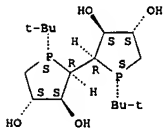
RN 528814-61-1 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-3,3',4,4'-tetrakis(phenylmethoxy)-, (1S,1'S,2R,2'R,3S,3'S,4S,4'S)- (CA INDEX NAME)

Absolute stereochemistry.

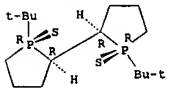


RN 528814-62-2 CAPLUS
CN [2,2'-Biphospholane]-3,3',4,4'-tetrol, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R,3S,3'S,4S,4'S)- (CA INDEX NAME)

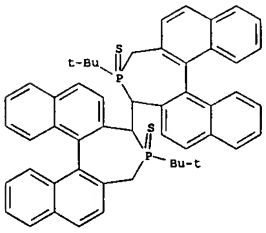
Absolute stereochemistry.



L4 ANSWER 29 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

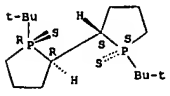


RN 528854-25-3 CAPLUS
CN 3,3'-Bi-3H-dinaphtho[2,1-c:1',2'-e]phosphepin, 4,4'-bis(1,1-dimethylethyl)-4,4',5,5'-tetrahydro-, 4,4'-disulfide, (3R,3'R,4R,4'R,11bS,11'bS)- (9CI) (CA INDEX NAME)

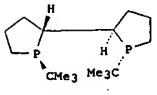


IT 528813-61-8P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of phosphorus-chiral phospholanes and related phosphocyclic
compds. and their use as cocatalysts in asym. catalytic reactions)
RN 528813-61-8 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, 1,1'-disulfide, (1R,1'S,2S,2'R)-rel- (9CI) (CA INDEX NAME)

Relative stereochemistry.



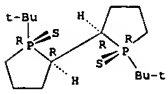
L4 ANSWER 30 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:810919 CAPLUS
DOCUMENT NUMBER: 138:55724
TITLE: Highly Efficient Synthesis of Chiral β-Amino Acid Derivatives via Asymmetric Hydrogenation
AUTHOR(S): Tang, Wenjun; Zhang, Xumu
CORPORATE SOURCE: Department of Chemistry, Pennsylvania State University, University Park, PA, 16802, USA
SOURCE: Organic Letters (2002), 4(23), 4159-4161
CODEN: ORLEF7; ISSN: 1523-7060
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 138:55724
GI



I

AB The Rh complex with TangPhos (I) is an efficient hydrogenation catalyst for making chiral β-amino acid derivs. With the Rh-TangPhos system, high enantioselectivities (up to 99.6%) and turnover nos. have been obtained in the hydrogenation of E/Z isomeric mixts. of both β-alkyl and β-aryl β-(acylamino)acrylates.
IT 470480-34-3
RL: PRP (Properties)
(crystal structure; chiral β-acetamidoalkanoates by asym. hydrogenation of β-acetamidoalkenoates with rhodium-TangPhos catalyst)
RN 470480-34-3 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, 1,1'-disulfide, (1R,1'R,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.

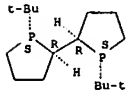


REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE
FORMAT

L4 ANSWER 30 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

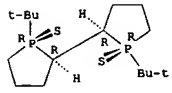
L4 ANSWER 31 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:385727 CAPLUS
DOCUMENT NUMBER: 137:311163
TITLE: A chiral 1,2-bisphospholane ligand with a novel structural motif: applications in highly enantioselective Rh-catalyzed hydrogenations
AUTHOR(S): Tang, Wenjun; Zhang, Xumu
CORPORATE SOURCE: Department of Chemistry, The Pennsylvania State University, University Park, PA, 16802, USA
SOURCE: Angewandte Chemie, International Edition (2002), 41(9), 1612-1614
CODEN: ACIEF5; ISSN: 1433-7851
PUBLISHER: Wiley-VCH Verlag GmbH
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 137:311163
AB TangPhos [i.e.(1S,1'S,2R,2R')-1,1'-bis(1,1-dimethylethyl)-2,2'-biphospholane, (I)] is a highly efficient and practical ligand for asym. hydrogenations. The catalyst was prepared in situ from I and bis(norbornadiene)rhodium(1+) hexafluoroantimonate. High enantioselectivities and turnover nos. were observed in the Rh-catalyzed hydrogenation of α-(acylamino)acrylic acids and α-arylenamides. Compds. thus prepared via stereoselective hydrogenation included (αR)-α-(acetylamino)-2-thiophenepropanoic acid Me ester, (αR)-α-(acetylamino)-2-naphthalenepropanoic acid Me ester, N-Acetyl-2-chloro-D-Phenylalanine Me ester, N-benzoyl-D-phenylalanine Me ester, N-Acetyl-D-phenylalanine Me ester, etc. Amines thus prepared included N-[(1R)-1-phenylethyl]acetamide, N-[(1R)-1-(3-methylphenyl)ethyl]acetamide, N-[(1R)-1-(2-naphthalenyl)ethyl]acetamide, N-[(1R)-1-phenylpropyl]acetamide, etc.
IT 470480-32-1P
RL: CAT (Catalyst use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(TangPhos; preparation of (1S,1'S,2R,2R')-1,1'-bis(1,1-dimethylethyl)-2,2'-biphospholane as ligand for stereoselective hydrogenation)
RN 470480-32-1 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, (1S,1'S,2R,2'R)- (CA INDEX NAME)

Absolute stereochemistry.



IT 470480-34-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of (1S,1'S,2R,2R')-1,1'-bis(1,1-dimethylethyl)-2,2'-biphospholane as ligand for stereoselective hydrogenation)
RN 470480-34-3 CAPLUS
CN 2,2'-Biphospholane, 1,1'-bis(1,1-dimethylethyl)-, 1,1'-disulfide, (1R,1'R,2R,2'R)- (CA INDEX NAME)

L4 ANSWER 31 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)
Absolute stereochemistry.



REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE
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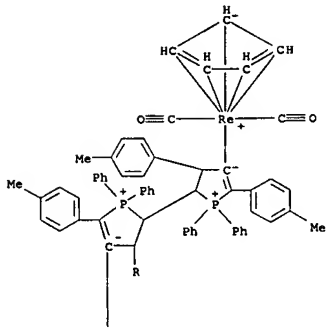
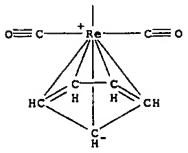
L4 ANSWER 32 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:71098 CAPLUS
DOCUMENT NUMBER: 134:295906
TITLE: Reaction of rhenium alkynyl carbene complexes with tertiary phosphines produces dihydrophospholium rhenium complexes by a formal CH insertion process
AUTHOR(S): Casey, C. P.; Kraft, S.; Powell, D. R.; Kavana, M.
CORPORATE SOURCE: Department of Chemistry, University of Wisconsin-Madison, Madison, WI, 53706, USA
SOURCE: Journal of Organometallic Chemistry (2001), 617-618, 723-736
CODEN: JORCAI; ISSN: 0022-328X
PUBLISHER: Elsevier Science S.A.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 134:295906
AB Addition of PPh2CH3 to the alkynyl carbene complex Cp(CO)2Re:C(Tol)(C.tplbond.CPh) (1a) (Tol = p-C6H4Me) gave the dihydrophospholium complex Cp(CO)2Re[[cyclic]C:C(Ph)PPh2CH2CH(Tol)] (4). When the reaction was monitored by low temperature NMR spectroscopy, initial phosphine addition to the carbene C atom of 1a to give σ-propargyl complex Cp(CO)2ReC(PPh2CH3)(Tol)C.tplbond.CPh (5) was observed at -78°. Upon warming to -20°, 5 rearranged to the σ-allenyl complex Cp(CO)2Re(Tol)C:C:C(Ph)(PPh2CH3) (6) via phosphine dissociation and readdn. Upon further warming to room temperature, 6 rearranged to 4. A protonation-deprotonation mechanism for the conversion of 6 to 4 is supported by the observation that reaction of 6 with DOTf produces the cationic allene complex Cp(CO)2Re[η2-2,3-(Tol)DC:C:C(Ph)(PPh2CH3)]OTf (11-d), which is converted to 4-d upon treatment with t-BuOK. The reaction of 1a with Ph2PCH:CH2 gave the cyclopropane-dihydrophospholium derivative Cp(CO)2Re[[bicyclic]C:C(Ph)PPh2CHCH2C(Tol)] (8). The x-ray structures of 4 and 8 were determined
IT 334711-40-9P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure of)
RN 334711-40-9 CAPLUS
CN Rhenium, tetracarbonylbis(η5-2,4-cyclopentadien-1-yl)[μ-[rel-(2R,2'R,3R,3'R)-2,2',3,3'-tetrahydro-3,3',5,5'-tetrakis(4-methylphenyl)-1,1,1',1'-tetraphenyl[2,2'-bi-1H-phospholium]-4,4'-diyl]]di- (9CI) (CA INDEX NAME)

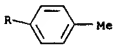
L4 ANSWER 32 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

PAGE 1-A



PAGE 2-A





REFERENCE COUNT: 72 THERE ARE 72 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
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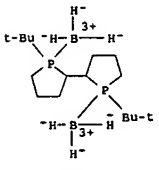
L4 ANSWER 32 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)

L4 ANSWER 33 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN

Inventors

ACCESSION NUMBER: 2000:519061 CAPLUS
DOCUMENT NUMBER: 133:112666
TITLE: 1-tert-Butyl-2-methylphospholaneborane and its coupling product 2,2'-bis(1-tert-butylphospholane-borane)
AUTHOR(S): Ohashi, Atsushi; Imamoto, Tsuneo
CORPORATE SOURCE: Department of Chemistry, Faculty of Science, Chiba University, Chiba, 263-8522, Japan
SOURCE: Acta Crystallographica, Section C: Crystal Structure Communications (2000), C56(6), 723-725
CODEN: ACSCEE; ISSN: 0108-2701
PUBLISHER: Munksgaard International Publishers Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The title compound, C9H22BP, and its coupling product, C16H38B2P2, were synthesized and their crystal structures analyzed by x-ray diffraction. Crystallog. data are given. The mol. structures clearly explain the stereoselective reaction pathways leading to the products. The average P-B distance and C-P-B angle are 1.929 Å and 114°, resp.
IT 282729-59-3
RL: PRP (Properties)
(crystal structure of)
RN 282729-59-3 CAPLUS
CN Boron, [μ-[rel-(1R,1'S,2S,2'R)-1,1'-bis(1,1-dimethylethyl)-2,2'-biphospholane-κP1:κP1']]hexahydrodi- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
FORMAT

L4 ANSWER 34 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1986:479063 CAPLUS
DOCUMENT NUMBER: 105:79063
TITLE: Carbon-carbon bond cleavage during silane reductions of the dimer of 2-phenylisophosphindole oxide
AUTHOR(S): Quin, Louis D.; Bernhardt, F. Christian
CORPORATE SOURCE: Gross Chem. Lab., Duke Univ., Durham, NC, 27706, USA
SOURCE: Journal of Organic Chemistry (1986), 51(16), 3235-7
CODEN: JOCEAH; ISSN: 0022-3263
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 105:79063
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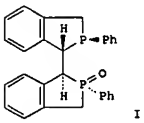
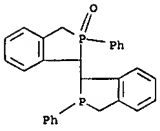


I

AB Reduction of 2-phenylisophosphindole oxide dimer with pyridine and Cl3SiH or
with PhSiH3 gave the bis(isophosphindoline) monooxide I, not the diphosphine expected.

IT 102979-53-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and oxidation of)

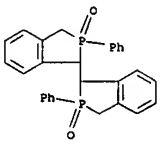
RN 102979-53-3 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2',3,3'-tetrahydro-2,2'-diphenyl-, 2-oxide, [1α(1'R*,2'S*),2β]- (9CI) (CA INDEX NAME)



IT 102979-54-4P 102979-55-5P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

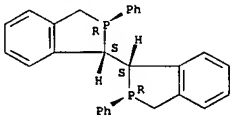
RN 102979-54-4 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2',3,3'-tetrahydro-2,2'-diphenyl-, 2,2'-dioxide, [1α(1'R*,2'R*),2β]- (9CI) (CA INDEX NAME)

L4 ANSWER 34 OF 34 CAPLUS COPYRIGHT 2007 ACS on STN (Continued)



RN 102979-55-5 CAPLUS
CN 1,1'-Bi-1H-isophosphindole, 2,2',3,3'-tetrahydro-2,2'-diphenyl-, [1α(1'R*,2'S*),2β]- (9CI) (CA INDEX NAME)

Relative stereochemistry.



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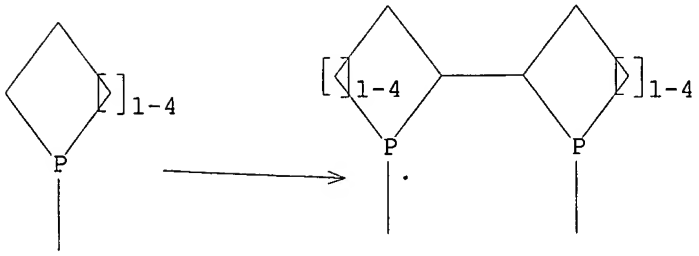

Structure attributes must be viewed using STN Express query preparation.

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SCREENING COMPLETE -        6 REACTIONS TO VERIFY FROM        1 DOCUMENTS

100.0% DONE       6 VERIFIED       0 HIT RXNS                    0 DOCS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS:  ONLINE  **COMPLETE**
                        BATCH   **COMPLETE**
PROJECTED VERIFICATIONS:          6 TO      266
PROJECTED ANSWERS:                0 TO        0

L2            0 SEA SSS SAM L1 (     0 REACTIONS)

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100.0% DONE     258 VERIFIED      55 HIT RXNS                   8 DOCS
SEARCH TIME: 00.00.01

L3            8 SEA SSS FUL L1 (    55 REACTIONS)

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L3 ANSWER 1 OF 8 CASREACT COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 142:430411 CASREACT
TITLE: Practical P-chiral phosphane ligand for Rh-catalyzed asymmetric hydrogenation
AUTHOR(S): Liu, Duan; Zhang, Xumu
CORPORATE SOURCE: Department of Chemistry, The Pennsylvania State University, University Park, PA, 16802, USA
SOURCE: European Journal of Organic Chemistry (2005), (4), 646-649
CODEN: EJOCFK; ISSN: 1434-193X
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE
FORMAT

L3 ANSWER 2 OF 8 CASREACT COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 141:424300 CASREACT
TITLE: P-chiral phospholanes and phosphocyclic compounds and their use in asymmetric catalytic reactions
INVENTOR(S): Zhang, Xumu; Tang, Wenjun
PATENT ASSIGNEE(S): The Penn State Research Foundation, USA
SOURCE: U.S. Pat. Appl. Publ., 41 pp., Cont.-in-part of U.S. Ser. No. 291,232.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20042298[illegible]	A1	20041118	US 2004-856014	20040528
US 7169953	B2	20070130		
US 20031441137	A1	20030731	US 2002-291232	20021108
US 7105702	B2	20060912		
US 2005119495	A1	20050602	US 2005-31159	20050107
US 7153809	B2	20061226		
WO 2005117907	A2	20051215	WO 2005-US14438	20050428
WO 2005117907	A3	20060908		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2001-336939P 20011109
US 2002-291232 20021108
US 2004-856014 20040528

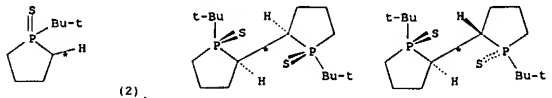
OTHER SOURCE(S): MARPAT 141:424300

AB Chiral ligands and metal complexes based on such chiral ligands useful in asym. catalysis are disclosed. The metal complexes according to the present invention are useful as catalysts in asym. reactions, such as, hydrogenation, hydride transfer, allylic alkylation, hydrosilylation, hydroboration, hydrovinylation, hydroformylation, olefin metathesis, hydrocarboxylation, isomerization, cyclopropanation, Diels-Alder reaction, Heck reaction, isomerization, Aldol reaction, Michael addition; epoxidn., kinetic resolution and [m+n] cycloaddn. Processes for the preparation of the ligands are also described. Thus, preparation of (1S,1S',2R,2R')-1,1'-di-tert-butyl[2,2']diphospholanyl TangPhos was prepared starting from 1,4-dibromobutane, PCl3, and t-BuMgCl and was used as cocatalyst with [Rh(NBD)2]SbF6 for asym. hydrogenation for dehydroamino acids.

REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS

L3 ANSWER 2 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

RX(2) OF 167 ...4 C ===> H + I...



4 C H I

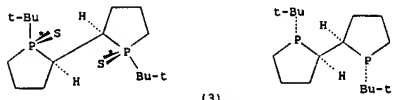
RX(2) RCT C 470480-33-2

STAGE(1)
RGT J 90-39-1 Sparteine, K 109-72-8 BuLi
SOL 60-29-7 Et2O, 110-54-3 Hexane
CON 1.5 hours, -78 deg C -> room temperature

STAGE(2)
RGT L 7447-39-4 CuCl2
CON 8 hours, -78 deg C -> room temperature

PRO H 470480-34-3, I 528813-61-8
NTE 14% overall

RX(3) OF 167 ...H ===> O

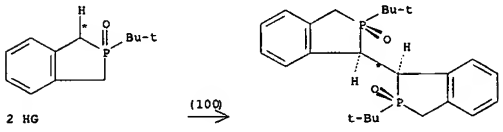


H O
YIELD 88%

RX(3) RCT H 470480-34-3
RGT P 13465-77-5 SiCl6
PRO O 470480-32-1
SOL 71-43-2 Benzene
CON 4 hours, reflux

RX(100) OF 167 ...2 HG ===> HI

L3 ANSWER 2 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)



2 HG HI

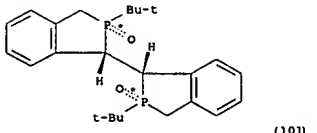
RX(100) RCT HG 104229-83-6

STAGE(1)
RGT K 109-72-8 BuLi
SOL 109-99-9 THF
CON 2 hours, -78 deg C -> room temperature

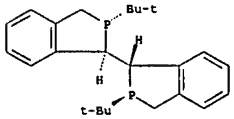
STAGE(2)
RGT L 7447-39-4 CuCl2
CON -78 deg C -> room temperature

PRO HI 795289-51-9

RX(101) OF 167 HJ ===> HK...



HJ

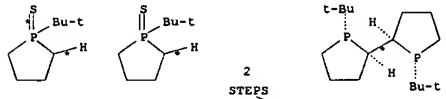


HK
YIELD 89%

L3 ANSWER 2 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)

RX(101) RCT HJ 795289-52-0
RGT HL 10025-78-2 HSiCl3, EN 121-44-8 Et3N
PRO HK 795289-55-3
SOL 108-88-3 PhMe
CON 16 hours, 70 deg C

RX(105) OF 167 COMPOSED OF RX(2), RX(3)
RX(105) 4 C ===> O



C 3 C O
YIELD 88%

RX(2) RCT C 470480-33-2

STAGE(1)
RGT J 90-39-1 Sparteine, K 109-72-8 BuLi
SOL 60-29-7 Et2O, 110-54-3 Hexane
CON 1.5 hours, -78 deg C -> room temperature

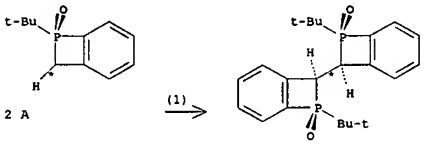
STAGE(2)
RGT L 7447-39-4 CuCl2
CON 8 hours, -78 deg C -> room temperature

PRO H 470480-34-3, I 528813-61-8
NTE 14% overall

RX(3) RCT H 470480-34-3
RGT P 13465-77-5 SiCl6
PRO O 470480-32-1
SOL 71-43-2 Benzene
CON 4 hours, reflux

L3 ANSWER 3 OF 8 CASREACT COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 141:313977 CASREACT
TITLE: Optically active 1,1'-di-tert-butyl-2,2'-dibenzophosphetenyl: a highly strained P-stereogenic diphosphine ligand
AUTHOR(S): Imamoto, Tsuneo; Crépy, Karen V. L.; Katagiri, Kosuke
CORPORATE SOURCE: Department of Chemistry, Faculty of Science, Chiba University, Inage-ku, Chiba, 263-8522, Japan
SOURCE: Tetrahedron: Asymmetry (2004), 15(14), 2213-2218
CODEN: TASYE3; ISSN: 0957-4166
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Both enantiomers of 1,1'-di-tert-butyl-2,2'-dibenzophosphetenyl were prepared from 2-bromobenzyl chloride and tert-butyldichlorophosphine. These ligands exhibited excellent enantioselectivity in the rhodium catalyzed asym. hydrogenation of Me α-acetylaminocinnamate.
REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

RX(1) OF 48 ...2 A ===> B...



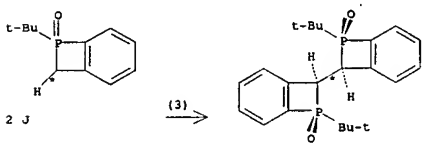
B
YIELD 44%

RX(1)

STAGE(1)
RGT C 110-18-9 TMEDA, D 598-30-1 s-BuLi
SOL 109-99-9 THF, 110-82-7 Cyclohexane
CON SUBSTAGE(1) 5 minutes, -78 deg C
SUBSTAGE(2) 30 minutes, -78 deg C

STAGE(2)
RCT A 765308-39-2
SOL 109-99-9 THF
CON SUBSTAGE(1) 2 hours, -78 deg C
SUBSTAGE(2) 2 hours, -50 deg C

L3 ANSWER 3 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)



K

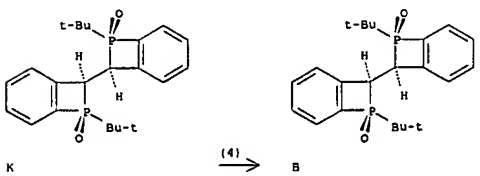
RX(3) RCT J 765308-38-1

STAGE(1)
RGT C 110-18-9 TMEDA, D 598-30-1 s-BuLi
SOL 109-99-9 THF
CON SUBSTAGE(1) 2 hours, -78 deg C
SUBSTAGE(2) 2 hours, -50 deg C

STAGE(2)
RGT E 7447-39-4 CuCl2
CON -50 deg C -> room temperature

PRO K 765308-43-8
NTE stereoselective

RX(4) OF 48 ...K ===> B...



RX(4) RCT K 765308-43-8

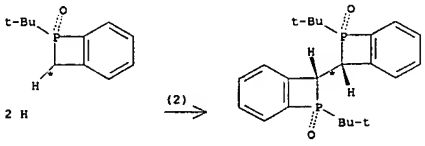
STAGE(1)
RGT L 17026-42-5 Butanedioic acid, 2,3-bis(benzoyloxy)-, (2S,3S)-
SOL 141-78-6 AcOEt
CON SUBSTAGE(1) heated
SUBSTAGE(2) room temperature

STAGE(2)

L3 ANSWER 3 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)
STAGE(3)
RGT E 7447-39-4 CuCl2
CON overnight, -50 deg C -> room temperature

PRO B 765308-41-6
NTE stereoselective

RX(2) OF 48 ...2 H ===> I...



I
YIELD 45%

RX(2)

STAGE(1)
RGT C 110-18-9 TMEDA, D 598-30-1 s-BuLi
SOL 109-99-9 THF, 110-82-7 Cyclohexane
CON SUBSTAGE(1) 5 minutes, -78 deg C
SUBSTAGE(2) 30 minutes, -78 deg C

STAGE(2)
RCT H 765308-40-5
SOL 109-99-9 THF
CON SUBSTAGE(1) 2 hours, -78 deg C
SUBSTAGE(2) 2 hours, -50 deg C

STAGE(3)
RGT E 7447-39-4 CuCl2
CON overnight, -50 deg C -> room temperature

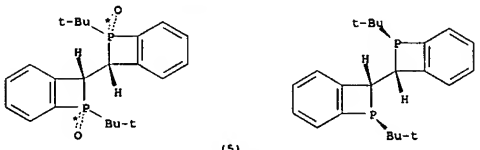
PRO I 765308-42-7
NTE stereoselective

RX(3) OF 48 ...2 J ===> K...

L3 ANSWER 3 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)
RGT M 1310-73-2 NaOH
SOL 7732-18-5 Water
CON room temperature

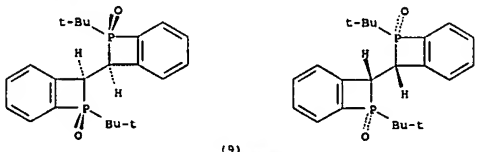
PRO B 765308-41-6
NTE stereoselective

RX(5) OF 48 ...I ===> P...



RX(5) RCT I 765308-42-7
RGT Q 13465-77-5 Si2Cl6
PRO P 765308-44-9
SOL 109-99-9 THF
CON SUBSTAGE(1) room temperature
SUBSTAGE(2) 370 minutes, 80 deg C

RX(9) OF 48 ...K ===> I...



RX(9) RCT K 765308-43-8

STAGE(1)
RGT AA 2743-38-6 Butanedioic acid, 2,3-bis(benzoyloxy)-, (2R,3R)-
SOL 141-78-6 AcOEt
CON heated

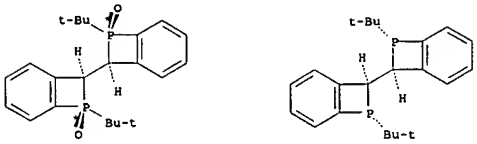
STAGE(2)

L3 ANSWER 3 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)

RGT M 1310-73-2 NaOH
SOL 7732-18-5 Water
CON room temperature

PRO I 765308-42-7
NTE stereoselective

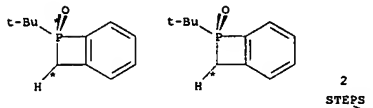
RX(12) OF 48 ...B ===> Y...



B Y

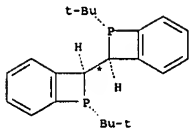
RX(12) RCT B 765308-41-6
RGT Q 13465-77-5 Si2Cl6
PRO Y 765308-45-0
SOL 109-99-9 THF
CON SUBSTAGE(1) room temperature
SUBSTAGE(2) 370 minutes, 80 deg C

RX(13) OF 48 COMPOSED OF RX(1), RX(12)
RX(13) 2 A ===> Y



A A

L3 ANSWER 3 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)



Y

RX(1)

STAGE(1)
RGT C 110-18-9 TMEDA, D 598-30-1 s-BuLi
SOL 109-99-9 THF, 110-82-7 Cyclohexane
CON SUBSTAGE(1) 5 minutes, -78 deg C
SUBSTAGE(2) 30 minutes, -78 deg C

STAGE(2)
RCT A 765308-39-2
SOL 109-99-9 THF
CON SUBSTAGE(1) 2 hours, -78 deg C
SUBSTAGE(2) 2 hours, -50 deg C

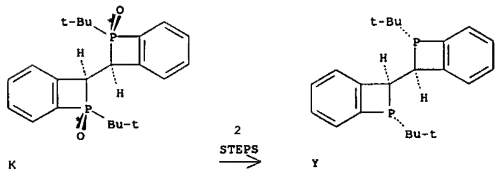
STAGE(3)
RGT E 7447-39-4 CuCl2
CON overnight, -50 deg C -> room temperature

PRO B 765308-41-6
NTE stereoselective

RX(12) RCT B 765308-41-6
RGT Q 13465-77-5 Si2Cl6
PRO Y 765308-45-0
SOL 109-99-9 THF
CON SUBSTAGE(1) room temperature
SUBSTAGE(2) 370 minutes, 80 deg C

RX(14) OF 48 COMPOSED OF RX(4), RX(12)
RX(14) K ===> Y

L3 ANSWER 3 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)



K Y

RX(4) RCT K 765308-43-8

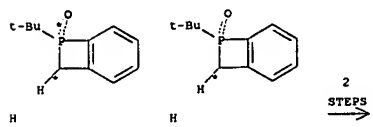
STAGE(1)
RGT L 17026-42-5 Butanedioic acid, 2,3-bis(benzoyloxy)-, (2S,3S)-
SOL 141-78-6 AcOEt
CON SUBSTAGE(1) heated
SUBSTAGE(2) room temperature

STAGE(2)
RGT M 1310-73-2 NaOH
SOL 7732-18-5 Water
CON room temperature

PRO B 765308-41-6
NTE stereoselective

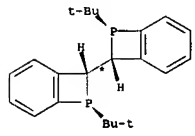
RX(12) RCT B 765308-41-6
RGT Q 13465-77-5 Si2Cl6
PRO Y 765308-45-0
SOL 109-99-9 THF
CON SUBSTAGE(1) room temperature
SUBSTAGE(2) 370 minutes, 80 deg C

RX(15) OF 48 COMPOSED OF RX(2), RX(5)
RX(15) 2 H ===> P



H H

L3 ANSWER 3 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)



P

RX(2)

STAGE(1)
RGT C 110-18-9 TMEDA, D 598-30-1 s-BuLi
SOL 109-99-9 THF, 110-82-7 Cyclohexane
CON SUBSTAGE(1) 5 minutes, -78 deg C
SUBSTAGE(2) 30 minutes, -78 deg C

STAGE(2)
RCT H 765308-40-5
SOL 109-99-9 THF
CON SUBSTAGE(1) 2 hours, -78 deg C
SUBSTAGE(2) 2 hours, -50 deg C

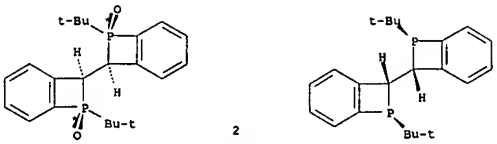
STAGE(3)
RGT E 7447-39-4 CuCl2
CON overnight, -50 deg C -> room temperature

PRO I 765308-42-7
NTE stereoselective

RX(5) RCT I 765308-42-7
RGT Q 13465-77-5 Si2Cl6
PRO P 765308-44-9
SOL 109-99-9 THF
CON SUBSTAGE(1) room temperature
SUBSTAGE(2) 370 minutes, 80 deg C

RX(16) OF 48 COMPOSED OF RX(9), RX(5)
RX(16) K ===> P

L3 ANSWER 3 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)



K P

RX(9) RCT K 765308-43-8

STAGE(1)
RGT AA 2743-38-6 Butanedioic acid, 2,3-bis(benzoyloxy)-, (2R,3R)-
SOL 141-78-6 AcOEt
CON heated

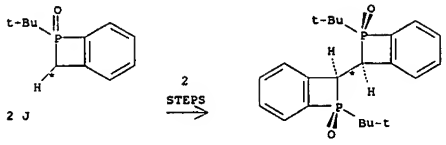
STAGE(2)
RGT M 1310-73-2 NaOH
SOL 7732-18-5 Water
CON room temperature

PRO I 765308-42-7
NTE stereoselective

RX(5) RCT I 765308-42-7
RGT Q 13465-77-5 Si2Cl6
PRO P 765308-44-9
SOL 109-99-9 THF
CON SUBSTAGE(1) room temperature
SUBSTAGE(2) 370 minutes, 80 deg C

RX(17) OF 48 COMPOSED OF RX(3), RX(4)
RX(17) 2 J ===> B

L3 ANSWER 3 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)



2 J B

RX(3) RCT J 765308-38-1

STAGE(1)
RGT C 110-18-9 TMEDA, D 598-30-1 s-BuLi
SOL 109-99-9 THF
CON SUBSTAGE(1) 2 hours, -78 deg C
SUBSTAGE(2) 2 hours, -50 deg C

STAGE(2)
RGT E 7447-39-4 CuCl2
CON -50 deg C -> room temperature

PRO K 765308-43-8
NTE stereoselective

RX(4) RCT K 765308-43-8

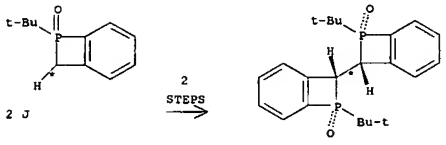
STAGE(1)
RGT L 17026-42-5 Butanedioic acid, 2,3-bis(benzoyloxy)-, (2S,3S)-
SOL 141-78-6 AcOEt
CON SUBSTAGE(1) heated
SUBSTAGE(2) room temperature

STAGE(2)
RGT M 1310-73-2 NaOH
SOL 7732-18-5 Water
CON room temperature

PRO B 765308-41-6
NTE stereoselective

RX(18) OF 48 COMPOSED OF RX(3), RX(9)
RX(18) 2 J ===> I

L3 ANSWER 3 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)



2 J I

RX(3) RCT J 765308-38-1

STAGE(1)
RGT C 110-18-9 TMEDA, D 598-30-1 s-BuLi
SOL 109-99-9 THF
CON SUBSTAGE(1) 2 hours, -78 deg C
SUBSTAGE(2) 2 hours, -50 deg C

STAGE(2)
RGT E 7447-39-4 CuCl2
CON -50 deg C -> room temperature

PRO K 765308-43-8
NTE stereoselective

RX(9) RCT K 765308-43-8

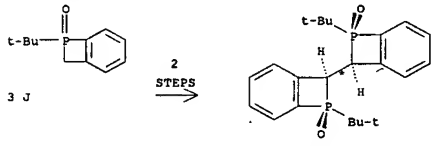
STAGE(1)
RGT AA 2743-38-6 Butanedioic acid, 2,3-bis(benzoyloxy)-, (2R,3R)-
SOL 141-78-6 AcOEt
CON heated

STAGE(2)
RGT M 1310-73-2 NaOH
SOL 7732-18-5 Water
CON room temperature

PRO I 765308-42-7
NTE stereoselective

RX(20) OF 48 COMPOSED OF RX(10), RX(1)
RX(20) 3 J ===> B

L3 ANSWER 3 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)



3 J B
YIELD 44%

RX(10) RCT J 765308-38-1
PRO A 765308-39-2, H 765308-40-5
NTE HPLC on Chiralcel OJ

RX(1)

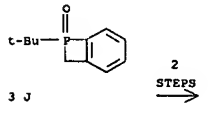
STAGE(1)
RGT C 110-18-9 TMEDA, D 598-30-1 s-BuLi
SOL 109-99-9 THF, 110-82-7 Cyclohexane
CON SUBSTAGE(1) 5 minutes, -78 deg C
SUBSTAGE(2) 30 minutes, -78 deg C

STAGE(2)
RCT A 765308-39-2
SOL 109-99-9 THF
CON SUBSTAGE(1) 2 hours, -78 deg C
SUBSTAGE(2) 2 hours, -50 deg C

STAGE(3)
RGT E 7447-39-4 CuCl2
CON overnight, -50 deg C -> room temperature

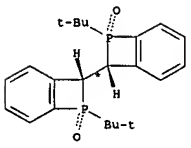
PRO B 765308-41-6
NTE stereoselective

RX(21) OF 48 COMPOSED OF RX(10), RX(2)
RX(21) 3 J ===> I



3 J

L3 ANSWER 3 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)



I
YIELD 45%

RX(10) RCT J 765308-38-1
PRO A 765308-39-2, H 765308-40-5
NTE HPLC on Chiralcel OJ

RX(2)

STAGE(1)
RGT C 110-18-9 TMEDA, D 598-30-1 s-BuLi
SOL 109-99-9 THF, 110-82-7 Cyclohexane
CON SUBSTAGE(1) 5 minutes, -78 deg C
SUBSTAGE(2) 30 minutes, -78 deg C

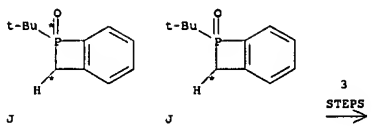
STAGE(2)
RCT H 765308-40-5
SOL 109-99-9 THF
CON SUBSTAGE(1) 2 hours, -78 deg C
SUBSTAGE(2) 2 hours, -50 deg C

STAGE(3)
RGT E 7447-39-4 CuCl2
CON overnight, -50 deg C -> room temperature

PRO I 765308-42-7
NTE stereoselective

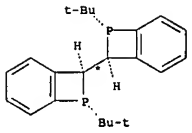
RX(33) OF 48 COMPOSED OF RX(3), RX(4), RX(12)
RX(33) 2 J ===> Y

L3 ANSWER 3 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)



J J

3 STEPS



Y

RX(3) RCT J 765308-38-1

STAGE(1)
RGT C 110-18-9 TMEDA, D 598-30-1 s-BuLi
SOL 109-99-9 THF
CON SUBSTAGE(1) 2 hours, -78 deg C
SUBSTAGE(2) 2 hours, -50 deg C

STAGE(2)
RGT E 7447-39-4 CuCl2
CON -50 deg C -> room temperature

PRO K 765308-43-8
NTE stereoselective

RX(4) RCT K 765308-43-8

STAGE(1)
RGT L 17026-42-5 Butanedioic acid, 2,3-bis(benzoyloxy)-, (2S,3S)-
SOL 141-78-6 AcOEt
CON SUBSTAGE(1) heated
SUBSTAGE(2) room temperature

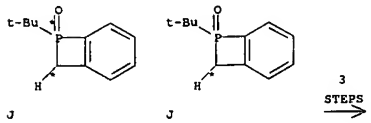
STAGE(2)
RGT M 1310-73-2 NaOH
SOL 7732-18-5 Water

L3 ANSWER 3 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)
CON room temperature

PRO B 765308-41-6
NTE stereoselective

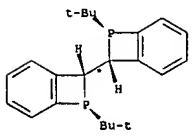
RX(12) RCT B 765308-41-6
RGT Q 13465-77-5 Si2Cl6
PRO Y 765308-45-0
SOL 109-99-9 THF
CON SUBSTAGE(1) room temperature
SUBSTAGE(2) 370 minutes, 80 deg C

RX(34) OF 48 COMPOSED OF RX(3), RX(9), RX(5)
RX(34) 2 J ===> P



J J

3 STEPS



P

RX(3) RCT J 765308-38-1

STAGE(1)
RGT C 110-18-9 TMEDA, D 598-30-1 s-BuLi
SOL 109-99-9 THF
CON SUBSTAGE(1) 2 hours, -78 deg C
SUBSTAGE(2) 2 hours, -50 deg C

STAGE(2)
RGT E 7447-39-4 CuCl2
CON -50 deg C -> room temperature

PRO K 765308-43-8
NTE stereoselective

L3 ANSWER 3 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)
RX(9) RCT K 765308-43-8

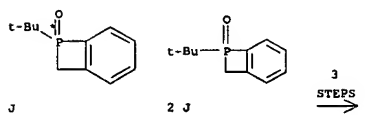
STAGE(1)
RGT AA 2743-38-6 Butanedioic acid, 2,3-bis(benzoyloxy)-, (2R,3R)-
SOL 141-78-6 AcOEt
CON heated

STAGE(2)
RGT M 1310-73-2 NaOH
SOL 7732-18-5 Water
CON room temperature

PRO I 765308-42-7
NTE stereoselective

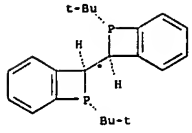
RX(5) RCT I 765308-42-7
RGT Q 13465-77-5 Si2Cl6
PRO P 765308-44-9
SOL 109-99-9 THF
CON SUBSTAGE(1) room temperature
SUBSTAGE(2) 370 minutes, 80 deg C

RX(37) OF 48 COMPOSED OF RX(10), RX(1), RX(12)
RX(37) 3 J ===> Y



J 2 J

3 STEPS



Y

RX(10) RCT J 765308-38-1
PRO A 765308-39-2, H 765308-40-5
NTE HPLC on Chiralcel OJ

RX(1)

L3 ANSWER 3 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)

STAGE(1)
RGT C 110-18-9 TMEDA, D 598-30-1 s-BuLi
SOL 109-99-9 THF, 110-82-7 Cyclohexane
CON SUBSTAGE(1) 5 minutes, -78 deg C
SUBSTAGE(2) 30 minutes, -78 deg C

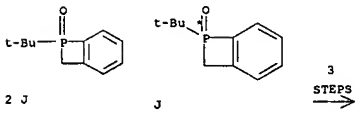
STAGE(2)
RCT A 765308-39-2
SOL 109-99-9 THF
CON SUBSTAGE(1) 2 hours, -78 deg C
SUBSTAGE(2) 2 hours, -50 deg C

STAGE(3)
RGT E 7447-39-4 CuCl2
CON overnight, -50 deg C -> room temperature

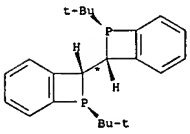
PRO B 765308-41-6
NTE stereoselective

RX(12) RCT B 765308-41-6
RGT Q 13465-77-5 Si2Cl6
PRO Y 765308-45-0
SOL 109-99-9 THF
CON SUBSTAGE(1) room temperature
SUBSTAGE(2) 370 minutes, 80 deg C

RX(39) OF 48 COMPOSED OF RX(10), RX(2), RX(5)
RX(39) 3 J ===> P



2 J J



P

L3 ANSWER 3 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)

RX(10) RCT J 765308-38-1
PRO A 765308-39-2, H 765308-40-5
NTE HPLC on Chiralcel OJ

RX(2)

STAGE(1)
RGT C 110-18-9 TMEDA, D 598-30-1 s-BuLi
SOL 109-99-9 THF, 110-82-7 Cyclohexane
CON SUBSTAGE(1) 5 minutes, -78 deg C
SUBSTAGE(2) 30 minutes, -78 deg C

STAGE(2)
RCT H 765308-40-5
SOL 109-99-9 THF
CON SUBSTAGE(1) 2 hours, -78 deg C
SUBSTAGE(2) 2 hours, -50 deg C

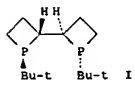
STAGE(3)
RGT E 7447-39-4 CuCl2
CON overnight, -50 deg C -> room temperature

PRO I 765308-42-7
NTE stereoselective

RX(5) RCT I 765308-42-7
RGT Q 13465-77-5 Si2Cl6
PRO P 765308-44-9
SOL 109-99-9 THF
CON SUBSTAGE(1) room temperature
SUBSTAGE(2) 370 minutes, 80 deg C

L3 ANSWER 4 OF 8 CASREACT COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 141:174232 CASREACT
TITLE: Optically active 1,1'-di-tert-butyl-2,2'-diphosphetanyl and its application in rhodium-catalyzed asymmetric hydrogenations
AUTHOR(S): Imamoto, Tsuneo; Sohara, Nobuhiko; Takahashi, Hidetoshi
CORPORATE SOURCE: Department of Chemistry, Faculty of Science, Chiba University, Chiba, 263-8522, Japan
SOURCE: Synthesis (2004), (9), 1353-1358
CODEN: SYNTBF; ISSN: 0039-7881
PUBLISHER: Georg Thieme Verlag
DOCUMENT TYPE: Journal
LANGUAGE: English
GI

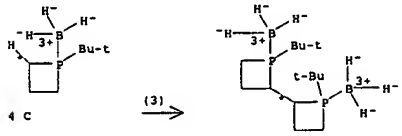


I

AB (1S,1'S,2R,2'R)-1,1'-Di-tert-butyl-2,2'-diphosphetanyl (I) was prepared from tert-butylphosphine via phosphine-boranes as intermediates. The rhodium complex of the ligand was used as a highly efficient catalyst in asym. hydrogenations of α-acetyl-aminoacrylates and α-substituted enamides.

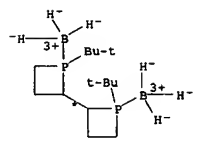
REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

RX(3) OF 32 ...4 C ===> L + M...



4 C L
YIELD 24%

L3 ANSWER 4 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)



M
YIELD 31%

RX(3)

STAGE(1)
RGT N 598-30-1 s-BuLi
CAT 90-39-1 Sparteine
SOL 60-29-7 Et2O
CON 30 minutes, -78 deg C

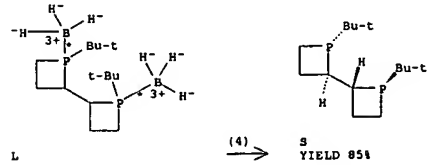
STAGE(2)
RCT C 735288-28-5
SOL 60-29-7 Et2O
CON 5 hours, -78 deg C

STAGE(3)
RGT O 7447-39-4 CuCl2
CON SUBSTAGE(1) 2 hours, -78 deg C -> room temperature
SUBSTAGE(2) 12 hours, room temperature

STAGE(4)
RGT P 7664-41-7 NH3
SOL 7732-18-5 Water
CON room temperature

PRO L 735288-29-6, M 736140-19-5
NTE stereoselective

RX(4) OF 32 ...L ===> S...



L S
YIELD 85%

L3 ANSWER 4 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)

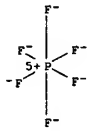
RX(4) RCT L 735288-29-6

STAGE(1)
RGT T 16872-11-0 HBF4
SOL 75-09-2 CH2Cl2
CON SUBSTAGE(1) 0 deg C
SUBSTAGE(2) overnight, 0 deg C

STAGE(2)
RGT U 144-55-8 NaHCO3
SOL 7732-18-5 Water
CON 2 hours, 0 deg C

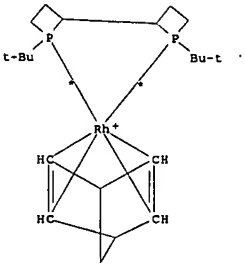
PRO S 528814-24-6

RX(6) OF 32 X ===> S...



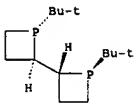
X: CM 1

L3 ANSWER 4 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)



X: CM 2

(6) ⟶



S
YIELD 75%

RX(6) RCT X 735288-35-4

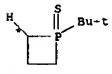
STAGE(1)
RGT Y 13465-77-5 Si2Cl6
SOL 71-43-2 Benzene
CON SUBSTAGE(1) 3 hours, reflux
SUBSTAGE(2) reflux -> room temperature

STAGE(2)
RGT Z 1310-73-2 NaOH
SOL 7732-18-5 Water
CON SUBSTAGE(1) room temperature
SUBSTAGE(2) 50 deg C

PRO S 528814-24-6

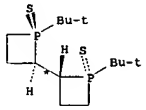
RX(8) OF 32 ...4 J ===> AD + AE

L3 ANSWER 4 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)

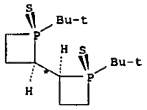


4 J

(8) ⟶



AD
YIELD 30%



AE
YIELD 40%

RX(8)

STAGE(1)
RGT N 598-30-1 s-BuLi
CAT 90-39-1 Sparteine
SOL 60-29-7 Et2O
CON 30 minutes, -78 deg C

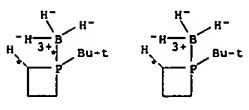
STAGE(2)
RCT J 735288-38-7
SOL 108-88-3 PhMe
CON 5 hours, -78 deg C

STAGE(3)
RGT O 7447-39-4 CuCl2
CON SUBSTAGE(1) 2 hours, -78 deg C -> room temperature
SUBSTAGE(2) 12 hours, room temperature

STAGE(4)
RGT P 7664-41-7 NH3
SOL 7732-18-5 Water
CON room temperature

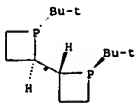
PRO AD 735288-40-1, AE 735288-42-3
NTE stereoselective

RX(24) OF 32 COMPOSED OF RX(3), RX(4)
RX(24) 4 C ===> S



C 3 C

2 STEPS ⟶



S
YIELD 85%

L3 ANSWER 4 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)

RX(3)

STAGE(1)
RGT N 598-30-1 s-BuLi
CAT 90-39-1 Sparteine
SOL 60-29-7 Et2O
CON 30 minutes, -78 deg C

STAGE(2)
RCT C 735288-28-5
SOL 60-29-7 Et2O
CON 5 hours, -78 deg C

STAGE(3)
RGT O 7447-39-4 CuCl2
CON SUBSTAGE(1) 2 hours, -78 deg C -> room temperature
SUBSTAGE(2) 12 hours, room temperature

STAGE(4)
RGT P 7664-41-7 NH3
SOL 7732-18-5 Water
CON room temperature

PRO L 735288-29-6, M 736140-19-5
NTE stereoselective

RX(4) RCT L 735288-29-6

STAGE(1)
RGT T 16872-11-0 HBF4
SOL 75-09-2 CH2Cl2
CON SUBSTAGE(1) 0 deg C
SUBSTAGE(2) overnight, 0 deg C

STAGE(2)
RGT U 144-55-8 NaHCO3
SOL 7732-18-5 Water
CON 2 hours, 0 deg C

PRO S 528814-24-6

L3 ANSWER 5 OF 8 CASREACT COPYRIGHT 2007 ACS on STN

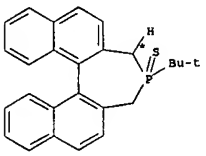
ACCESSION NUMBER: 139:307850 CASREACT
TITLE: A bisphosphepin ligand with stereogenic phosphorus centers for the practical synthesis of β-aryl-β-amino acids by asymmetric hydrogenation
AUTHOR(S): Tang, Wenjun; Wang, Weimin; Chi, Yongxiang; Zhang, Xumu
CORPORATE SOURCE: Department of Chemistry, The Pennsylvania State University, University Park, PA, 16802, USA
SOURCE: Angewandte Chemie, International Edition (2003), 42(30), 3509-3511
CODEN: ACIEF5; ISSN: 1433-7851
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A new chiral bisphosphepin ligand (I) comprising both double C2-chirality and stereogenic phosphorus centers was developed for the asym. hydrogenation of (Z)-β-(acylamino)acrylic acid derivs. Lithiation of (S)-2,2'-dimethyl-1,1'-binaphthyl followed by reaction with tBuPCl2 and sulfur afforded 4-tert-butyldinaphtho[2,1-d:1',2'-f][1,3,2]dioxaphosphepin 4-sulfide, which was oxidatively coupled to give (RP,RP')-P,P'-disulfide of I (3). Crystal structure of 3 was determined Desulfurization of 3 by Si2Cl6 gave ligand I [(SP,SP',S)-1, BINAPINE], which was tested for rhodium-catalyzed asym. hydrogenation of dehydro-β-amino acids. Excellent enantioselectivities and reactivities were observed in the rhodium-catalyzed asym. hydrogenation of a (Z)-Ar(NHAc)C:CHCO2Me (Ar = 4-X-C6H4, 2-MeC6H4, 2-MeOC6H4, 3-pyridinyl; X = H, F, Cl, Br, Me, MeO, Ph, PhCH2O) giving (R)-Ar(NHAc)CHCH2CO2Me β-amino acids, using new ligand 1. As the substrates for the asym. hydrogenation can be prepared readily, the new rhodium-BINAPINE catalyst provides an efficient method for the practical synthesis of chiral β-aryl-β-amino acids.

REFERENCE COUNT: 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

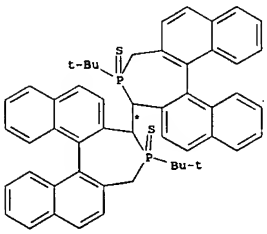
RX(1) OF 33 ...2 A ===> B...

L3 ANSWER 5 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)



2 A

(1) →



B
YIELD 25%

RX(1) RCT A 528854-24-2

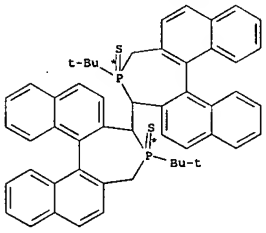
STAGE(1)
RGT C 110-18-9 TMEDA, D 680-31-9 HMPT, E 594-19-4 t-BuLi
SOL 109-99-9 THF, 109-66-0 Pentane
CON 4 hours, -78 deg C

STAGE(2)
RGT F 7440-50-8 Cu
CON SUBSTAGE(1) 1 hour, -78 deg C
SUBSTAGE(2) overnight, room temperature

PRO B 528854-25-3
NTE stereoselective

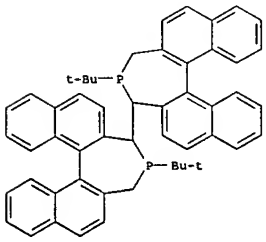
L3 ANSWER 5 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)

RX(2) OF 33 ...B ===> I...



B

(2) →



I
YIELD 90%

RX(2) RCT B 528854-25-3

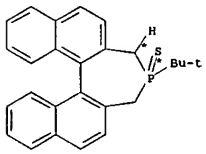
STAGE(1)
RGT J 13465-77-5 Si2Cl6
SOL 71-43-2 Benzene
CON 4 days, reflux

STAGE(2)
RGT K 1310-73-2 NaOH
SOL 7732-18-5 Water
CON 60 deg C

L3 ANSWER 5 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)

PRO I 528854-26-4

RX(19) OF 33 COMPOSED OF RX(1), RX(2)
RX(19) 2 A ===> I



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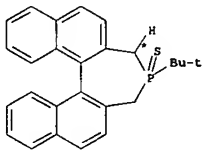
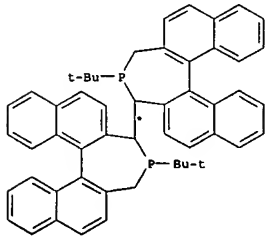


A

2 STEPS →



I
YIELD 90%

RX(1) RCT A 528854-24-2

STAGE(1)
RGT C 110-18-9 TMEDA, D 680-31-9 HMPT, E 594-19-4 t-BuLi
SOL 109-99-9 THF, 109-66-0 Pentane
CON 4 hours, -78 deg C

STAGE(2)
RGT F 7440-50-8 Cu
CON SUBSTAGE(1) 1 hour, -78 deg C
SUBSTAGE(2) overnight, room temperature

L3 ANSWER 5 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)
PRO B 528854-25-3
NTE stereoselective

RX(2) RCT B 528854-25-3

STAGE(1)
RGT J 13465-77-5 Si2Cl6
SOL 71-43-2 Benzene
CON 4 days, reflux

STAGE(2)
RGT K 1310-73-2 NaOH
SOL 7732-18-5 Water
CON 60 deg C

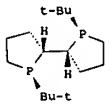
PRO I 528854-26-4

see IDS

L3 ANSWER 6 OF 8 CASREACT COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 138:401901 CASREACT
TITLE: P-chiral phospholanes and phosphocyclic compounds and their use in asymmetric catalytic reactions
INVENTOR(S): Zhang, Xumu; Tang, Wenjun
PATENT ASSIGNEE(S): The Penn State Research Foundation, USA
SOURCE: PCT Int. Appl., 70 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003042135	A2	20030522	WO 2002-US35788	20021108
WO 2003042135	A3	20031224		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2466449	A1	20030522	CA 2002-2466449	20021108
AU 2002363788	A1	20030526	AU 2002-363788	20021108
EP 1451133	A2	20040901	EP 2002-803182	20021108
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
JP 2005509012	T	20050407	JP 2003-543975	20021108
CN 1608074	A	20050420	CN 2002-826029	20021108
PRIORITY APPLN. INFO.:			US 2001-336939P	20011109
			WO 2002-US35788	20021108

OTHER SOURCE(S): MARPAT 138:401901
GI



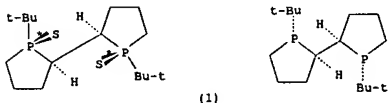
I

P.2 synthesis from PCl_3

P.22 from RPH_2

AB Chiral ligands and metal complexes based on such chiral ligands useful in asym. catalysis are disclosed. The metal complexes according to the present invention are useful as catalysts in asym. reactions, such as, hydrogenation, hydride transfer, allylic alkylation, hydrosilylation, hydroboration, hydrovinylation, hydroformylation, olefin metathesis, hydrocarboxylation, isomerization, cyclopropanation. Diels-Alder reaction, Heck reaction, isomerization, Aldol reaction, Michael addn.; epoxidn., kinetic resoln. and [m+n] cycloaddn. Processes for the prepn. of the ligands are also described. Thus, Grignard reaction of BrMgCH2(CH2)2CH2MgBr with PCl3 in the presence of t-BuMgCl in THF followed by thianation gave 1-tert-butylphospholane 1-sulfide which on BuLi/CuCl2-mediated coupling in presence of (-)-sparteine followed desulfurization with hexachlorodisilane/C6H6 gave title phospholane, TangPhos I. [Rh(COD)2]BF4-I mediated asym. catalytic reactions are described.

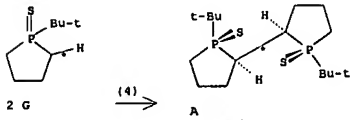
RX(1) OF 221 ...A ===> B



A B
YIELD 88%

RX(1) RCT A 470480-34-3
RGT C 13465-77-5 Si2Cl6
PRO B 470480-32-1
SOL 71-43-2 Benzene
CON 4 hours, reflux
NTE stereoselective

RX(4) OF 221 ...2 G ===> A...



2 G A
YIELD 14%

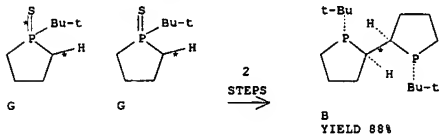
RX(4) RCT G 470480-33-2

STAGE(1)
RGT M 90-39-1 Sparteine, N 109-72-8 BuLi
SOL 60-29-7 Et2O, 110-54-3 Hexane
CON 9 hours, -78 deg C

STAGE(2)
RGT O 7447-39-4 CuCl2
CON 4 hours, room temperature

PRO A 470480-34-3

RX(108) OF 221 COMPOSED OF RX(4), RX(1)
RX(108) 2 G ===> B



G G 2 STEPS B
YIELD 88%

RX(4) RCT G 470480-33-2

STAGE(1)
RGT M 90-39-1 Sparteine, N 109-72-8 BuLi
SOL 60-29-7 Et2O, 110-54-3 Hexane
CON 9 hours, -78 deg C

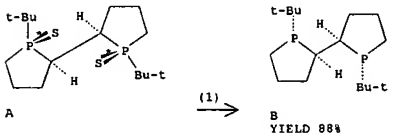
STAGE(2)
RGT O 7447-39-4 CuCl2
CON 4 hours, room temperature

PRO A 470480-34-3

RX(1) RCT A 470480-34-3
RGT C 13465-77-5 Si2Cl6
PRO B 470480-32-1
SOL 71-43-2 Benzene
CON 4 hours, reflux
NTE stereoselective

L3 ANSWER 7 OF 8 CASREACT COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 137:311163 CASREACT
TITLE: A chiral 1,2-bisphospholane ligand with a novel structural motif: applications in highly enantioselective Rh-catalyzed hydrogenations
AUTHOR(S): Tang, Wenjun; Zhang, Xumu
CORPORATE SOURCE: Department of Chemistry, The Pennsylvania State University, University Park, PA, 16802, USA
SOURCE: Angewandte Chemie, International Edition (2002), 41(9), 1612-1614
CODEN: ACIEF5; ISSN: 1433-7851
PUBLISHER: Wiley-VCH Verlag GmbH
DOCUMENT TYPE: Journal
LANGUAGE: English
AB TangPhos [i.e. (1S,1'S,2R,2R')-1,1'-bis(1,1-dimethylethyl)-2,2'-biphospholane, (I)] is a highly efficient and practical ligand for asym. hydrogenations. The catalyst was prepared in situ from I and bis(norbornadiene)rhodium(1+) hexafluoroantimonate. High enantioselectivities and turnover nos. were observed in the Rh-catalyzed hydrogenation of α-(acylamino)acrylic acids and α-arylenamides. Compds. thus prepared via stereoselective hydrogenation included (αR)-α-(acetylamino)-2-thiophenepropanoic acid Me ester, (αR)-α-(acetylamino)-2-naphthalenepropanoic acid Me ester, N-Acetyl-2-chloro-D-Phenylalanine Me ester, N-benzoyl-D-phenylalanine Me ester, N-Acetyl-D-phenylalanine Me ester, etc. Amines thus prepared included N-[(1R)-1-phenylethyl]acetamide, N-[(1R)-1-(3-methylphenyl)ethyl]acetamide, N-[(1R)-1-(2-naphthalenyl)ethyl]acetamide, N-[(1R)-1-phenylpropyl]acetamide, etc.
REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

RX(1) OF 41 ...A ===> B...



RX(1) RCT A 470480-34-3

STAGE(1)
RGT C 13465-77-5 Si2Cl6
SOL 71-43-2 Benzene

STAGE(2)
RGT D 1310-73-2 NaOH

L3 ANSWER 7 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)
SOL 60-29-7 Et2O, 110-54-3 Hexane

STAGE(2)
RGT P 7447-39-4 CuCl2

STAGE(3)
RGT Q 1336-21-6 NH4OH
SOL 7732-18-5 Water

PRO A 470480-34-3
NTE stereoselective

RX(1) RCT A 470480-34-3

STAGE(1)
RGT C 13465-77-5 Si2Cl6
SOL 71-43-2 Benzene

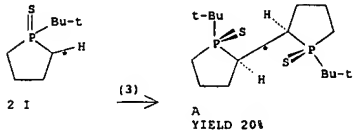
STAGE(2)
RGT D 1310-73-2 NaOH
SOL 7732-18-5 Water

PRO B 470480-32-1

L3 ANSWER 7 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)
SOL 7732-18-5 Water

PRO B 470480-32-1

RX(3) OF 41 ...2 I ===> A...



RX(3) RCT I 470480-33-2

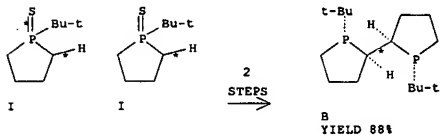
STAGE(1)
RGT N 109-72-8 BuLi, O 90-39-1 Sparteine
SOL 60-29-7 Et2O, 110-54-3 Hexane

STAGE(2)
RGT P 7447-39-4 CuCl2

STAGE(3)
RGT Q 1336-21-6 NH4OH
SOL 7732-18-5 Water

PRO A 470480-34-3
NTE stereoselective

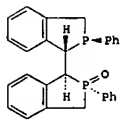
RX(38) OF 41 COMPOSED OF RX(3), RX(1)
RX(38) 2 I ===> B



RX(3) RCT I 470480-33-2

STAGE(1)
RGT N 109-72-8 BuLi, O 90-39-1 Sparteine

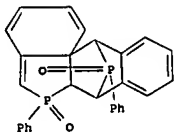
L3 ANSWER 8 OF 8 CASREACT COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 105:79063 CASREACT
TITLE: Carbon-carbon bond cleavage during silane reductions of the dimer of 2-phenylisophosphindole oxide
AUTHOR(S): Quin, Louis D.; Bernhardt, F. Christian
CORPORATE SOURCE: Gross Chem. Lab., Duke Univ., Durham, NC, 27706, USA
SOURCE: Journal of Organic Chemistry (1986), 51(16), 3235-7
CODEN: JOCEAH; ISSN: 0022-3263
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



AB Reduction of 2-phenylisophosphindole oxide dimer with pyridine and Cl3SiH or with PhSiH3 gave the bis(isophosphindoline) monooxide I, not the diphosphine expected.

RX(2) OF 7 ...2 B ===> D + E...

PAGE 1-A



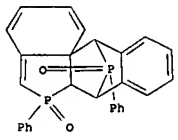
* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

PAGE 6-E

B

L3 ANSWER 8 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)

PAGE 1-A

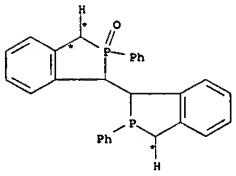


* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

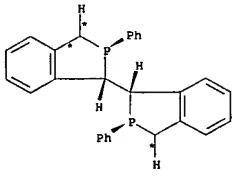
PAGE 6-E

B

(2)



D

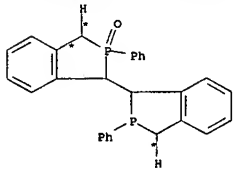


E

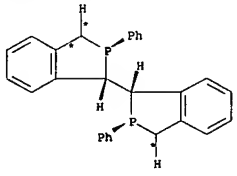
RX(2) RCT B 102979-52-2
RGT F 694-53-1 PhSiH3
PRO D 102979-53-3, E 102979-55-5
SOL 71-43-2 Benzene

RX(3) OF 7 2 B ===> D + E

L3 ANSWER 8 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)



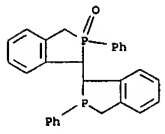
D



E

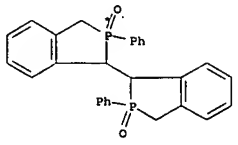
RX(3) RCT B 102979-52-2
RGT H 10025-78-2 HSiCl3, I 110-86-1 Pyridine
PRO D 102979-53-3, E 102979-55-5
SOL 71-43-2 Benzene

RX(4) OF 7 ...D ===> J



D

(4)



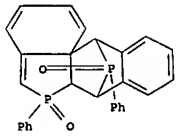
J

RX(4) RCT D 102979-53-3
RGT K 75-91-2 t-BuOOH
PRO J 102979-54-4
SOL 865-49-6 CDCl3

RX(5) OF 7 COMPOSED OF RX(1), RX(2)
RX(5) 4 A ===> D + E

L3 ANSWER 8 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)

PAGE 1-A

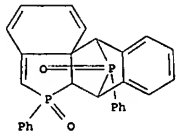


* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

PAGE 6-E

B

PAGE 1-A



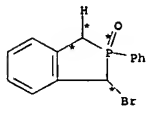
* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

PAGE 6-E

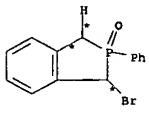
B

(3)

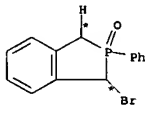
L3 ANSWER 8 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)



A

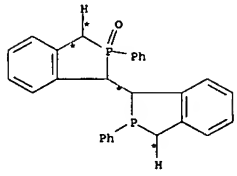


A



2 A

2
STEPS



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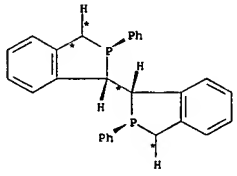


E

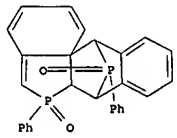
RX(1) RCT A 102979-51-1
RGT C 121-44-8 Et3N
PRO B 102979-52-2

RX(2) RCT B 102979-52-2
RGT F 694-53-1 PhSiH3
PRO D 102979-53-3, E 102979-55-5
SOL 71-43-2 Benzene

RX(6) OF 7 COMPOSED OF RX(2), RX(4)
RX(6) 2 B ===> J

L3 ANSWER 8 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)

PAGE 1-A

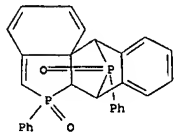


* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

PAGE 6-E

B

PAGE 1-A



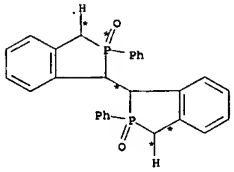
* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

PAGE 6-E

B

2
STEPS

L3 ANSWER 8 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)



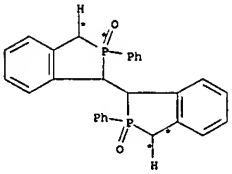
J

RX(1) RCT A 102979-51-1
RGT C 121-44-8 Et3N
PRO B 102979-52-2

RX(2) RCT B 102979-52-2
RGT F 694-53-1 PhSiH3
PRO D 102979-53-3, E 102979-55-5
SOL 71-43-2 Benzene

RX(4) RCT D 102979-53-3
RGT K 75-91-2 t-BuOOH
PRO J 102979-54-4
SOL 865-49-6 CDCl3

L3 ANSWER 8 OF 8 CASREACT COPYRIGHT 2007 ACS on STN (Continued)

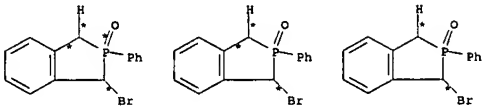


J

RX(2) RCT B 102979-52-2
RGT F 694-53-1 PhSiH3
PRO D 102979-53-3, E 102979-55-5
SOL 71-43-2 Benzene

RX(4) RCT D 102979-53-3
RGT K 75-91-2 t-BuOOH
PRO J 102979-54-4
SOL 865-49-6 CDCl3

RX(7) OF 7 COMPOSED OF RX(1), RX(2), RX(4)
RX(7) 4 A ===> J

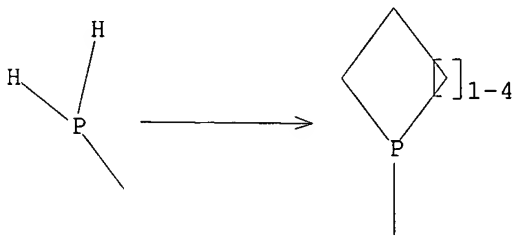


A A 2 A

3
STEPS

STN Casreact Search


```
ring nodes :
1  2  3  4
ring/chain nodes :
5  11
chain bonds :
1-5  8-9  8-10  8-11
ring bonds :
1-2  1-4  2-3  3-4
exact bonds :
1-2  1-4  1-5  2-3  3-4  8-9  8-10  8-11
isolated ring systems :
containing 1 :


Match level :
1:Atom  2:Atom  3:Atom  4:Atom  5:CLASS  8:CLASS  9:CLASS  10:CLASS  11:CLASS
fragments assigned product role:
containing 1
fragments assigned reactant/reagent role:
containing 8



L1      STRUCTURE UPLOADED

=> d
L1 HAS NO ANSWERS
L1                STR
```




```
Structure attributes must be viewed using STN Express query preparation.


=> s l1
SAMPLE SEARCH INITIATED 15:43:10 FILE 'CASREACT'
SCREENING COMPLETE -     3913 REACTIONS TO VERIFY FROM      432 DOCUMENTS

100.0% DONE    3913 VERIFIED      58 HIT RXNS                    3 DOCS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS:  ONLINE  **COMPLETE**
                        BATCH   **COMPLETE**
PROJECTED VERIFICATIONS:     74518 TO    82002
PROJECTED ANSWERS:               3 TO      163

L2            3 SEA SSS SAM L1 (    58 REACTIONS)

=> s l1 full
FULL SEARCH INITIATED 15:44:17 FILE 'CASREACT'
```

Steps (1) → (3) and (3) → (4) or (5)

SCREENING COMPLETE - 71692 REACTIONS TO VERIFY FROM 8656 DOCUMENTS

100.0% DONE 71692 VERIFIED 499 HIT RXNS (2 INCOMP) 75 DOCS
SEARCH TIME: 00.00.04

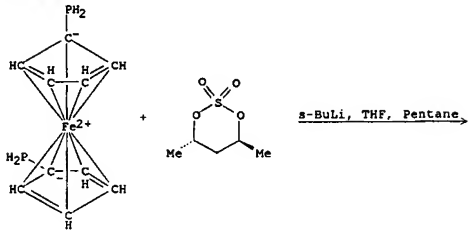
L3 75 SEA SSS FUL L1 (499 REACTIONS)

=> d scan

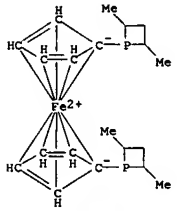
L3 75 ANSWERS CASREACT COPYRIGHT 2007 ACS on STN

TI Chiral ligands for asymmetric catalysis

RX(1) OF 4



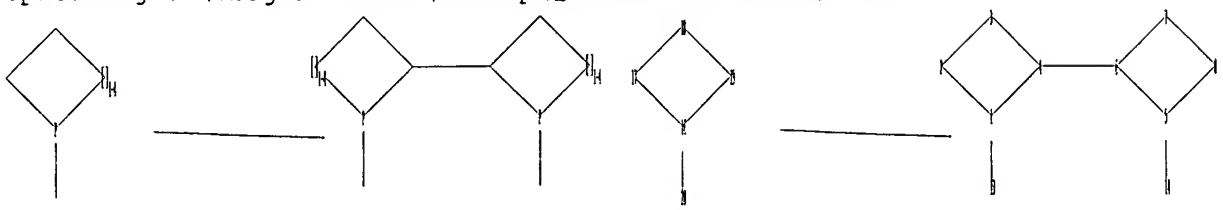
RX(1) OF 4



28%

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):0

=>
Uploading C:\Program Files\Stnexp\Queries\10564985\2.str

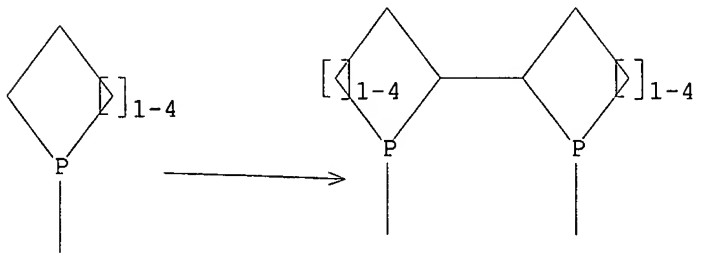


ring nodes :
1 2 3 4 5 6 7 8 16 17 18 19
ring/chain nodes :
13 14 20
chain bonds :
1-13 4-6 5-14 16-20
ring bonds :
1-2 1-4 2-3 3-4 5-6 5-8 6-7 7-8 16-17 16-19 17-18 18-19
exact/norm bonds :
1-2 1-4 2-3 3-4 5-6 5-8 6-7 7-8 16-17 16-19 17-18 18-19
exact bonds :
1-13 4-6 5-14 16-20

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 13:CLASS 14:CLASS
16:Atom 17:Atom 18:Atom 19:Atom 20:CLASS
fragments assigned product role:
containing 1
fragments assigned reactant/reagent role:
containing 16

L4 STRUCTURE UPLOADED

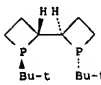
=> d
L4 HAS NO ANSWERS
L4 STR



Structure attributes must be viewed using STN Express query preparation.

```
=> d his

     (FILE 'HOME' ENTERED AT 15:42:48 ON 19 DEC 2007)

     FILE 'CASREACT' ENTERED AT 15:42:56 ON 19 DEC 2007
L1              STRUCTURE UPLOADED
L2            3 S L1
L3           75 S L1 FULL
L4              STRUCTURE UPLOADED

=> s l4 full sub=L3
FULL SUBSET SEARCH INITIATED 15:45:13 FILE 'CASREACT'
SCREENING COMPLETE -        0 REACTIONS TO VERIFY FROM        0 DOCUMENTS

100.0% DONE       0 VERIFIED       0 HIT RXNS                      0 DOCS
SEARCH TIME: 00.00.01

L5            0 SEA SUB=L3 SSS FUL L4 (     0 REACTIONS)

=> s l4 full
FULL SEARCH INITIATED 15:45:21 FILE 'CASREACT'
SCREENING COMPLETE -      258 REACTIONS TO VERIFY FROM       65 DOCUMENTS

100.0% DONE     258 VERIFIED      55 HIT RXNS                     8 DOCS
SEARCH TIME: 00.00.01

L6            8 SEA SSS FUL L4 (    55 REACTIONS)

=> s l6 and l3
L7            1 L6 AND L3

=> d ibib abs
```

L7 ANSWER 1 OF 1 CASREACT COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 141:174232 CASREACT
TITLE: Optically active 1,1'-di-tert-butyl-2,2'-diphosphetanyl and its application in rhodium-catalyzed asymmetric hydrogenations
AUTHOR(S): Imamoto, Tsuneo; Oohara, Nobuhiko; Takahashi, Hidetoshi
CORPORATE SOURCE: Department of Chemistry, Faculty of Science, Chiba University, Chiba, 263-8522, Japan
SOURCE: Synthesis (2004), (9), 1353-1358
CODEN: SYNTBF; ISSN: 0039-7881
PUBLISHER: Georg Thieme Verlag
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



I

AB (1S,1'S,2R,2'R)-1,1'-Di-tert-butyl-2,2'-diphosphetanyl (I) was prepared from tert-butylphosphine via phosphine-boranes as intermediates. The rhodium complex of the ligand was used as a highly efficient catalyst in asym. hydrogenations of α-acetyl-aminoacrylates and α-substituted enamides.
REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT